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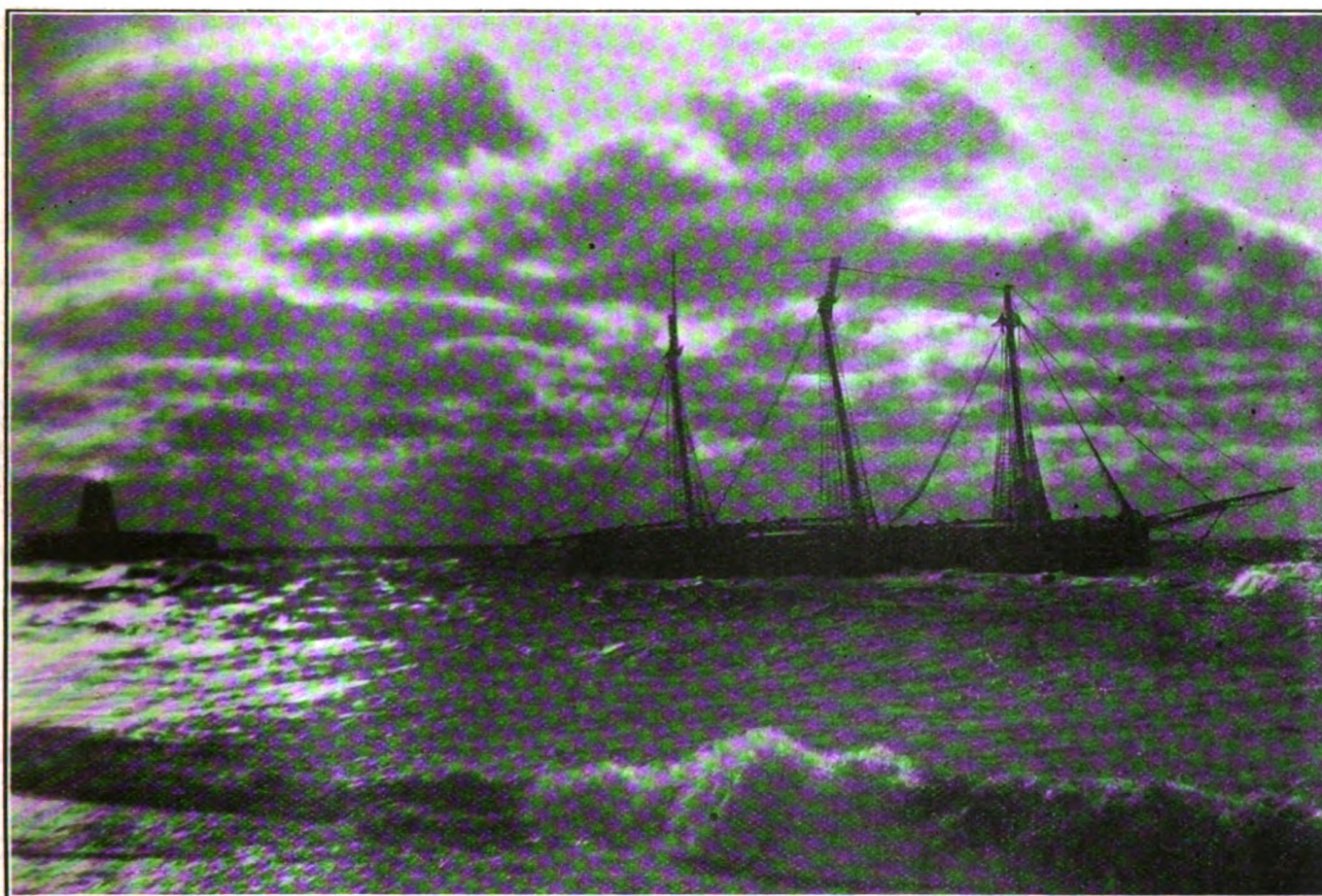
PRACTICALLY A HOPELESS CASE.

Things appear to be in a very bad way with the United States Ship Building Co. A deadlock virtually exists—Receiver Smith being unable to carry on operations without the assistance of the reorganization committee and that body waiting for the receiver to come to its terms. The receiver closed the plant of the Crescent Ship Yard and at the same time issued a statement saying that he had striven hard to avert the loss resulting from such closing down and its consequent hardship upon so many workmen. He said that during the week he had repeatedly applied to the reorganization committee for financial assistance to enable him to maintain the plant as a going concern, but that, to give it its mildest term, the attitude of the reorganization committee had been one of inactivity. He added that a proposition

with the committee's plans. The second-mortgage bonds are controlled by Mr. Charles M. Schwab. They are an exclusive lien upon the plant of the Bethlehem Steel Co. and a second mortgage upon the ship building plants.

MR. DINKEY PRESIDENT OF CARNEGIE COMPANY.

As foreshadowed over two weeks ago, Mr. A. C. Dinkey, superintendent of the Homestead Steel Works, has been made president of the Carnegie Steel Co. in succession to Mr. W. E. Corey, lately elevated to the presidency of the United States Steel Corporation. Mr. Dinkey was born in Weatherly, Pa., in 1866. He was educated in the common schools there and at Braddock. He entered the Edgar Thomson Steel Works at the age of sixteen as a telegrapher. Later he left the company to



STRANDED.

[Photo by R. R. Gallows, Goderich, Ont.]

had been made by the reorganization committee to furnish funds to keep the plants of the ship building company going until the first mortgage could be foreclosed, but that it was of such a nature as not to commend itself to his judgment. Meanwhile the United States government has stepped in and has cancelled the contracts with the Crescent Ship Yard for the cruiser Chattanooga and the torpedo boats Nicholson and O'Brien. The government will complete them and turn the profits, if any, over to the company. Of course, it is extremely unlikely that there will be any profits. It is understood that Receiver Smith's health has broken down under the strain of trying to save this property and that his physician has warned him to desist. The courts of California have just extended his jurisdiction over the plant of the Union Iron Works. It appears to be clear, however, that the receiver has done all that he can do. He is without funds and without the hope of getting any. The Mercantile Trust Co. of New York, acting for the first-mortgage bondholders, has already begun suit to foreclose; and Judge Kirkpatrick of the United States district court, Newark, N. J., has authorized the New York Security & Trust Co. of New York to bring suit against the receiver to ascertain the status of the \$10,000,000 of second-mortgage bonds issued by the company. Clearly the first and second-mortgage bondholders are acting together to foreclose and then to buy in the property and reorganize it in accordance

introduce electric lighting commercially into Pittsburg. Then he took charge of the electrical department of the Homestead plant. He was the first to introduce electricity for driving feed tables, and revolutionized rolling mill practice, displacing hooks and tongs operated by hand labor. Four men only were required to roll instead of twenty-five. He effected a great reduction in labor cost and put the Homestead mill far in advance of all others. The practice originated by him is followed now in every steel works and rolling mill in the world. He was the first to introduce electric cranes in rolling mills. He assisted in the development of the electric charging machine and has patented one type of machine, also being patentee of the Dinkey controller, in general use in steel works and rolling mills, and a crane for soaking pits. In 1898 he was appointed assistant general superintendent of the Homestead plant and in 1901 succeeded Mr. W. E. Corey as general superintendent.

A very old anchor was picked up recently by the United States steamer Hancock at the foot of Lake Huron between Corsica shoal and the mouth of the St. Clair river. Molded in the anchor is the British crown and crescent and the date "1819". The anchor is about 8 ft. long at the stock and attached to it by many strands of heavy wire is a chain, ancient in style as the anchor itself and about 25 ft. long. The government has taken possession of the relic.

SCOTCH SHIPPING LETTER.

Outlook in Ship Yards still Unsatisfactory—Big Floating Dry Dock—New Scouts, Cruisers and Battleships.

Glasgow, Aug. 10.—No improvement in the conditions of ship building can be reported. Ship yards on the Clyde are only beginning to resume work after the July holidays. The output of July from all the Scotch shipyards was seventeen vessels of 17,315 tons, as compared with twenty-nine vessels and 29,885 tons in June, and with nineteen vessels and 32,022 tons in July of last year. The Clyde output was fourteen vessels and 15,903 tons, bringing the Clyde output for the seven months to 203,700 tons. The July output did not include anything of special interest for American readers, but it may be noted that of the tonnage launched 500 tons were for Rio de Janeiro, 500 tons for Italy, and 500 tons for New Zealand—all the rest being for British owners. The largest item was a steamer of 4,400 tons built by Napier & Miller for Glasgow owners. The new contracts booked during the month do not exceed 10,000 tons. They include three high-speed cross-channel steamers for the Irish service of the Midland Railway Co. The Fairfield company has received a contract to build a scout of 2,545 tons displacement, 16,000 I. H. P. and 25 knots for the admiralty. A few of the larger yards have still a good deal of work on hand but the smaller yards have little on hand and less to look forward to, even repair work decreasing. Freights are so exceedingly low that many tramp owners are trying to sell their boats at a heavy sacrifice. Notwithstanding the depressing conditions and prospects labor troubles are still looked for in the ship building industry. Working agreements under the recent wage reduction are now expiring. Conferences with the men of the engineering trades are under way and the ship yard workers are still to be arranged with.

In most departments of the iron and steel trades the quietness has lately become pronounced. Pig iron business for future delivery has fallen off, consequent upon the reduced demand from the Continent and the slackness of the holiday season. The shipments, both coastwise and to Continental ports, disclose a decrease, while the exports to America have practically ceased. While the present dulness is of a transient character, the outlook so far as raw material is concerned is healthy. There is no disposition on the part of makers to make concessions, as they have in most cases enough orders on their books to keep them busy pending a revival of inquiries from consumers. Prices for warrant iron have again rallied under the influence of the strong attitude of makers. The trade for manufactured iron and steel remains dull, and in home centers the competition of German and Belgian makers is keenly felt. Large quantities of billets and blooms are being imported into this country from Germany, and Belgian material has been obtained on unusually cheap terms. The rail trade has reassumed more animation and negotiations are now proceeding for large orders on home and Colonial account, while inquiries are also renewed from American sources. The question of the regulation of prices for the export trade by British, American and German interests has been revived, but it is doubtful whether the negotiations will lead to a satisfactory issue, in view of the difficulties encountered on a previous occasion with German works. The unfavorable advices from the United States regarding general trade conditions have confirmed the pessimistic views of trade experts on this side.

LARGE FLOATING DOCK.

Another remarkable floating dock has been launched from the ship building yard of William Hamilton & Co., Port-Glasgow, the second of two floating docks built to the order of the Rotterdamsche Droogdok Maatschappij of Rotterdam. This dock, which is 438 ft. long and 96 ft. 6 in. broad, has a lifting power of 7,500 tons, and is capable of docking vessels of this weight up to 72 ft. beam. It is of the self-docking type, being built in six separate pontoons connected together in a fore-and-aft direction by continuous sidewalls extending over the whole length of the dock. Each of the pontoons is capable of being disconnected, floated out and docked on the remainder, for painting or repairs. The dock is divided into twenty-four watertight compartments with a large suction pipe led to each. The pumping arrangement is very complete, consisting of six 16-in. centrifugal pumps, each capable of discharging 1,200 tons of water per hour, or together 7,200 tons per hour, and each directly coupled on to a large-powered motor, the necessary current to drive which is got from a power station ashore. The piping, valves, etc., are so arranged that any of the twenty-four compartments can be emptied by any of the six pumps. The dock has been launched in two sections.

ENGLISH VIEW OF OUR NAVY BOILER QUESTION.

From this side we regard with great interest the navy boiler question in the United States. Many of the cylindrical boilers built eight and ten years ago, it seems, are showing excessive wear and leakage, and Admiral Melville, until recently engineer-in-chief of your navy, maintains the view that the allowance of weight for boilers was always too small. Thus is an exact repetition of the conditions of the British navy, but Admiral Sir John Durston, our engineer-in-chief, recognizing that a greater weight could not be granted (owing to the demands of guns and armor), adopted the only water-tube boiler with which there was extensive experience. Admiral Melville, on the other hand, seemed to prefer to sit still waiting for more

experience. Ultimately the Niclausse boiler was adopted in five of your ships while other types were also introduced. Now, according to reports before the navy board, the Niclausse type is not giving satisfaction, and it has been decided to defer the fitting of it to other ships. Admiral Melville was not more enamored of the Niclausse design than were the engineers at the British admiralty, although two or three of our ships have been fitted with it. None of the vessels to be laid down by the British admiralty this year are to have the Niclausse boiler. The cruisers will be fitted with the Yarrow boiler, or with the Babcock & Wilcox in combination with a small proportion of plant of the cylindrical type for raising steam for cruising at low power. This is in accordance with the recommendation of the boiler committee, who were greatly impressed with the Yarrow boiler, especially as regards its design and manufacture. In their final report they will doubtless give expression to this view. In the third-class cruiser which has been fitted with Yarrow boilers for trial by the boiler committee, several of the tubes in the second row from the fire in one of the boilers buckled in a way which was unusual, but this difficulty has been overcome, and the results are now quite satisfactory.

NEW SCOUTS, TORPEDO BOAT DESTROYERS AND CRUISERS.

The new scouts are to be built by the four firms now engaged in the construction of similar vessels, namely, the Fairfield company, who are building the *Forward*; Vickers Sons & Maxim, who have the *Sentinel* in hand; Sir W. G. Armstrong, Whitworth & Co., who have the *Adventure* building at Elswick; and Laird Bros., who have the contract for the *Pathfinder*. The new vessels will be duplicates of those in hand. They will vary from 2,000 tons displacement and 17,000 I. H. P. of the *Sentinel* to 2,545 tons and 16,000 I. H. P. of the Fairfield vessel. In each case the builders guarantee 25 knots speed with 150 tons of coal in the bunkers. The armament in each case is to be the same—ten 12-pounder quick-firers. The new torpedo boat destroyers will be ordered from the firms who are now completing the 25½-knot destroyers ordered a year ago, as soon as one of their vessels passes successfully through her trials.

The Admiralty is considering tenders from the selected ship building firms for the construction of three armored cruisers to be laid down in private works under this year's programme, and also for the construction of the machinery of a fourth vessel of the same type to be built at the Pembroke dock yard. The tenders are to be for the construction of one vessel, or for two of them, and there is certain to be keen competition. These cruisers are to be practically of the same type as the *Duke of Edinburgh*, laid down at Pembroke and engined by Hawthorn, Leslie & Co., Newcastle-on-Tyne, or as the *Black Prince*, built and engined by the Thames Iron Works Co. These ships are of the central battery type, with most of the quick-firing guns within the citadel separated by armored bulkheads or traverses, while the forward and aft guns are in separate gun towers. This enables six 9.2-in. guns to be mounted, one at each corner of the citadel, with separate bow and stern chasing guns of the same caliber. In addition there are to be ten 6-in. quick-firing and twenty-eight small guns. The *Duke of Edinburgh* class of ship has a length of 480 ft., a beam of 73 ft. 6 in., and at 27 ft. draught the displacement will be 13,550 tons. A speed of 22.33 knots is to be realized when the engines are developing 23,500 H. P.

REDUCED DIVIDENDS OF GERMAN SHIPPING COMPANIES.

The depressed condition of German shipping is shown by the following comparison of the recent audits of the companies with those of 1901:

	1902. Dividend per cent.	1901. Dividend per cent.
Hamburg-American Line	4.5	6
North German Lloyd .....	...	6
German Hansa Co.	6	8
Kosmos Co.	9	12
Hamburg South American .....	...	4
German East African Line	2.5	2
German Australian Line	5	8
German Levant Line	2	6.5
Bremen Argo Co. ....	...	3
Bremen Neptune Co.	5	7
Flensburg Steamship Co. ....	...	6

With the single exception of the German East African line, there is a substantially decreased return in each case. And with the German East African Co. only a heavy subsidy enabled it to pay a dividend at all.

THE BIG BATTLESHIPS.

The big battleship *King Edward VII.*, recently launched at the Devonport dock yard, had her keel laid by the king on March 8 of last year when Queen Alexandra launched the battleship *Queen*, so that the vessel has been sixteen and a half months on the stocks, and during that time 6,100 tons of material, including 675 tons of armor, have been worked into the structure. The total weight of hull will ultimately be 10,075 tons. This vessel is the pattern of the class to which the Fairfield's *Commonwealth*, Clydebank's *Hindustan*, Vickers' *Dominion*, and the New Zealand at Portsmouth dock yard belong. They are the last of the ships designed by Sir William White as director of naval construction, and while his first battleships had a displacement of 14,000 tons, these new ships run up to 16,350 tons,

although practically none of this increase has gone to the hulls. The hardening of armor has enabled the depth of belt to be increased from about 16 ft. to 22 ft., without forfeiting any of its resisting power per unit of area. The armor is continued to 5 ft. below the normal water line to provide against the probability of the lower part being exposed by the ship rolling. Cost has gone up because of better armor, more powerful guns and higher speed, the rate ten years ago having been £15 per ton less than now. The King Edward is estimated to cost £1,426,266. Her heaviest gun of 50 tons weight will develop a power of 40,000 ft. tons, as compared with 35,000 ft. tons of the 69-ton gun of ten years ago; and she carries four 9.2-in. guns in excess of the armament of existing battleships.

SHIP SUBSIDY FACTS FOR THE PLAIN DEALER.

In its issue of Aug. 7 the Cleveland Plain Dealer discusses the subject of the new Cunard steamship contract with the British government. The Plain Dealer exhibits a feeling of sensitiveness regarding some criticism made of its former discussion of the subject of British abandonment of subsidies, and now seeks to justify its former assertions, having before it the full terms of the contract between the British government and the Cunard company, and it says:

"It turns out, as was expected, to have small resemblance to the subsidy schemes proposed in the several bills that gasped their way through successive congresses and were left dead on the table or in the committee room at the end of each congress. The arrangement (between the Cunard company and the British government) is not a bounty or a subsidy but a definite payment for a definite service and with conditions not even hinted at in either of the American subsidy schemes."

The Plain Dealer proceeds to recite the terms of the contract between the Cunard people and the British government, as follows: 1. For carrying the mails an annual payment of \$340,000 is to be made for twenty years. 2. A loan of \$13,000,000 by the British government to the Cunard Line, to enable the latter to build two steamships in order to provide a weekly mail service, these vessels to be so built as to be useful as cruisers in time of war. 3. An annual subsidy of \$750,000 for twenty years, as the Plain Dealer explains, because of the exceptional size, speed and auxiliary naval uses to which the ships can be put. The Plain Dealer recites a number of minor conditions imposed by the government upon the Cunard company, in which the latter is obliged to retain its ships as British, to keep them at the disposal of the British admiralty, the masters, officers and engineers all to be Britons, three-fourths of the crew to be British subjects, and at least one-half of them to be members of the British Royal Naval Reserve.

For the information of the Plain Dealer, we deem it pertinent to present some of the chief provisions of the last-pending ship subsidy bill. It provided, according to its title, "for ocean mail service between the United States and foreign ports, and the common defense; to promote commerce, and to encourage the deep-sea fisheries." Under that title every condition imposed by the British government upon the Cunard company in its recently-made agreement is imposed by the United States government upon the ships that would receive the subsidies therein provided. Without additional compensation than provided for, the ships receiving the subsidies are to carry the mails, and those of a certain size and speed are to be so built as to be useful as cruisers in time of war. To be sure it was not provided in the American subsidy bill that the United States should lend enough money to any one single company to enable it to build its ships, as in the Cunard-British agreement the former company receives \$13,000,000. American ship owners were required to find their own money, as best they could. Nor were two steamships to receive any such munificent subsidy as the two ships of the Cunard Line receive, namely, a total of \$1,090,000 a year. But at least one-half of the crews of the American vessels were to be American citizens, and, under existing laws, all officers of American vessels must be American citizens. The American ship subsidy bill provided that none of the vessels enjoying the subsidy should be sold to foreigners without the consent of the government. In short, it would seem that the American ship subsidy bill was constantly under the eyes of the British government in the framing of its agreement with the Cunard Line.

We admit that the British government has singled out one particular line in the case under discussion for the granting of its subsidy, but apart from the agreement with the Cunard Line the British government is now paying subsidies aggregating over \$3,500,000 to other British steamship lines. The British government subsidizes British merchant shipmasters, officers and seamen, as members of her "Royal Naval Reserve" to the tune of over \$1,400,000 a year, but the United States pays for a similar naval recourse not one dollar. The 1902 report of the United States commissioner of navigation, page 358, summarizes the payments made by Great Britain for "foreign and colonial packet service of Great Britain" as follows:

Payment during year 1901-2	\$3,772,847
Amount received by contribution	861,658
Amount received by sea postage for mails dispatched by colonies and foreign countries	451,168
Cost borne in respect of mails dispatched from United Kingdom	2,460,021

From the above the Plain Dealer will see how much of the

subsidy was contributed by the actual receipts from sea postage—how much money was paid by the senders of mail and how much by government contribution.

Another thing that the Plain Dealer should know is this: In making contracts for the carriage of the mails the British government pays a far larger sum to British steamships than it could secure the service for from foreign steamships. That fact has been proven many times. Postal subsidies are paid, not alone for mail carriage, but in a number of cases for commercial advantages, and these subsidies are always higher than the rates paid by the British government to foreign steamships carrying British mails, the latter being at the rate fixed by the Postal Union, and known as the Postal Union rate. For the further information of the Plain Dealer, we append the following questions and answers appearing in the British parliamentary report of the select committee on steamship subsidies, pages 14 and 15, Sir Alfred Bateman, head of the statistical department of the Board of Trade, being the person who answered the questions:

Q. Can you make it clear for the general purposes of the inquiry, how far British subsidies are strictly for value received? A. In deference to the committee, I would rather wish them to ask the different departments who give them. Subsidies are given by the post office, by the admiralty, and by the colonial office, as regards the Elder, Dempster Line.

Q. Do you consider that that is a variation from the system hitherto pursued with regard to British steamship companies as to the carrying of mails? A. I understand it has not much to do with the carrying of mails; it has more to do with the carrying of bananas.

Q. But it is a special case, is it not? A. Yes, it is a special case, as I understand.

Q. And as regards that I believe Jamaica pays half of the subsidy, does it not? A. In the case of the line between Jamaica and the United Kingdom the contractors undertook to maintain a service of fruit, passenger, and mail-carrying steamers, sailing under a time table approved by the colonial government. Passengers are to be carried at fixed rates, specified in the contract, and the contractors are to purchase at the current market rates of the day not less than 20,000 bunches of bananas for each voyage from Jamaica to the English port, and convey all bananas so purchased to the English port. The contractors are also to ship at specified rates all fruit and other goods offered to them, subject to the shipment of the bananas referred to above. The mails are to be carried free of charge.

The Plain Dealer will note, in the foregoing, two distinct points: First, that the British government, as in the case of the Elder, Dempster Line and the Cunard Line, is always ready with special provisions to cover special cases, but if the advancement of British commercial interests can be had through the payment of subsidies, a way is generally found to pay them; and second, it would be impossible to discover in what manner the British government received value for subsidies paid to a steamship line for carrying bananas to England.

Subsidies are paid in order to induce people to establish steamship lines, and there is an abundance of evidence to prove that in many cases the subsidies pay the larger part if not the whole of the dividends to these lines. This should prove that the lines could not be run without the subsidies, and it should further prove that the subsidies prevent competition, at least on the part of unsubsidized lines; that is to say, when Great Britain pays subsidies to her steamship lines, she not only promotes British commerce, but she makes it all the more difficult if not impossible for unsubsidized foreign lines to compete with the British steamship lines. If this is not the very essence of government protection, we should like to have the Plain Dealer tell us what is.

Mr. Andrew Carnegie lately pointed out in London that a fair share of Canadian imports and exports pass in bond through the United States and that should Great Britain exercise a preferential duty in favor of Canada it would be a simple contrivance for the United States to prevent Canadian exports and imports through United States territory. This theme has been now thoroughly threshed out in Britain, as is everything that Mr. Carnegie says, and the conclusion is reached that vigorous opposition would be made by the railways to the cancellation of that privilege. These imports and exports supply an immense amount of traffic to American railways and their loss would be seriously felt. Moreover they could be shipped from Halifax or St. John, which are all-year ports—not so conveniently, nor so cheaply perhaps, but they could be shipped. Preferential duties, however, have done very little to stimulate Canadian trade with Great Britain. Proximity will always make the United States Canada's greatest customer.

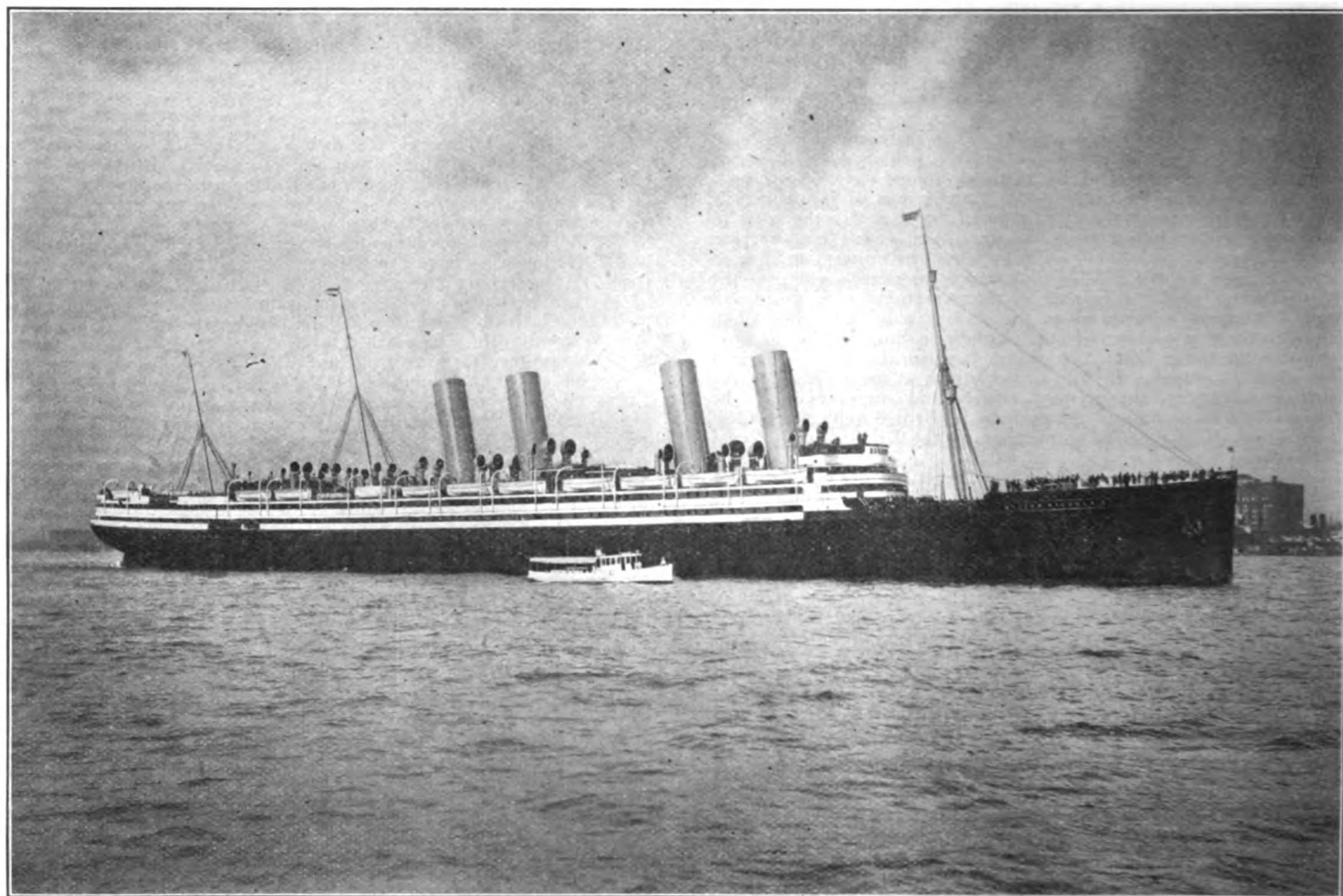
The Canadian Pacific liner *Empress of India* and the Chinese cruiser *Huang-Tai* collided near Hong Kong this week and the cruiser was sunk, the captain and thirteen of the crew being drowned. The balance of the crew, numbering 170, were saved by the *Empress*. From Canadian Pacific sources it is learned that the two vessels were running parallel courses when the cruiser suddenly tried to cross the *Empress's* bows. The liner maneuvered to lessen the unavoidable impact, but such serious damage was inflicted that the cruiser sank within an hour. The cruiser was 260 ft. long, 36 ft. beam and drew 20 ft. of water. She was built at Elswick in 1888. The *Empress of India* was built at Barrow in 1890 and is 440 ft. long.

NORTH ATLANTIC TRADE.

Why not Project Two Fast American Liners Into the Trade—Reasons Which Actuated the British Admiralty to Aid the Cunard Company.

It is pertinent to ask why it would not be a good idea for the United States government to aid in the establishment of a fast steamship line on the North Atlantic route. It was shown in last week's Review that the Cunard Steamship Co. is to build two fast steamships with money loaned to it by the British government. The principal is \$13,000,000 at 2¾ per cent interest, to be repaid in twenty annual installments. The amount which the Cunard company will have restored to the government at the end of the first year will be \$1,007,500, or \$650,000 principal and \$357,500 interest; but it will have received in subsidies \$1,000,000, or \$82,500 more than principal and interest charges. Every year thereafter this balance in favor of the Cunard company will be increased in the sum of \$17,875 which is the interest on the annual reimbursement of \$650,000. Why cannot the United States government do some such thing to stimulate its merchant marine? There is no use saying that fast steamships do not pay. Prestige pays. The cold facts are that the line with the fastest ships gets the cream of the trade. For eight years the German lines have been carrying the best of the passenger traffic; and the German lines are subsidized to the extent of 7 per cent. of their

380 first-class and 187 second-class passengers, whilst on the following day the fast American Line ship took only fifty-seven first-class and eighty-seven second-class passengers, and a White Star fast ship took 149 first-class and 160 second-class passengers. The difference in speed was 2 knots, but passengers were willing to pay for it. In the week ending May 22 we had the Kaiser Wilhelm der Grosse taking 378 first-class and 240 second-class passengers, whilst on the following day the St. Paul took only eighty-four first-class and 101 second-class passengers; the Germanic, ninety-four first-class passengers, and the French La Lorraine 168 first-class and eighty-nine second-class passengers. Here we have one ship taking more first-class passengers than the other three. In the week ending May 29 the Kaiser Wilhelm II. took 514 out of the 2,812 first-class passengers embarking, although there were twenty other saloon passenger ships leaving New York, including such well-known vessels as the Cedric, Etruria, New York, Majestic, La Gascoigne, Blucher, Barbarossa, and Princess Irene. The three last-named German intermediate ships took an average of 200 first-class passengers each. Coming to more recent dates, when traffic had considerably increased, and when passengers were more numerous, we have on July 7 the Kronprinz Wilhelm taking 340 first-class and 222 second-class passengers, while the New York took 134 first and 144 second. One of the best instances of all is the latest return received, that for the week ending July 24.



Kaiser Wilhelm II of the North German Lloyd Steamship Co.'s Fleet.

capital stock. Let us submit a little evidence from Engineering of London concerning the profitableness of fast ships. This publication has for years kept a record of transatlantic trade. Concerning this very point it says in its issue of Aug. 7:

"Returns of passengers embarking on various ships clearly demonstrate that the traveling public have a pronounced preference for high-speed vessels. From the weekly returns of passengers embarking at New York in the various ships, we take at random a week or two before the extensive tourist traffic eastward set in—first, the week ending April 24. The fast ship of this week was the Kronprinz Wilhelm, and she carried 365 first-class passengers and 181 second-class. One of the fastest American liners leaving on the same day had only ninety-eight first-class passengers and 122 second-class, and one of the intermediate Cunard ships leaving also on the same day had 115 first-class and 116 second-class passengers. Clearly, the fast ship reaped a harvest, even although her fares were higher. In the following week, ending May 1, the Kaiser Wilhelm II. left with 521 first-class and 355 second-class passengers, while the fast American Line ship on the same day had only eighty-two first-class and seventy-two second-class passengers. One of our high-speed British ships left three days before with only 133 first-class and 120 second-class passengers. On May 15 again the Kronprinz Wilhelm left with

Here the Kaiser Wilhelm II., leaving on the 21st ult., took 344 first-class and 184 second-class passengers, while the Etruria, leaving on the 18th, and the St. Paul on the 22nd and the Majestic on the 22nd—all notable ships—took amongst them only 339 first-class passengers. Similar figures could be given for the outward service. On the outward trip preceding the home trip just referred to the German ship carried 287 first and 336 second, as compared with 237 and 338 respectively by the three others."

These figures prove clearly the attractiveness to passengers of the line which has the fastest ships.

Last week only the brief terms of the agreement with the Cunard company were available. Now the mails have brought the argument of the admiralty committee which sets forth very comprehensively the conditions which had to be met in the Atlantic trade. In its preamble the committee states:

"In April, 1902, the admiralty appointed a committee to take evidence, consider and report in what manner and at what cost British merchant cruisers of adequate speed and capacity could be secured for the service of the country. In the letter appointing this committee, the lords commissioners of the admiralty stated 'that as the fastest ships in the mercantile marine now in existence are not registered as British vessels, the time has come, in their lordships' opinion, to reconsider the principles on which subsidies

are now being given to British steamship companies for the retention of merchant cruisers.'

"That the time had arrived when such an inquiry was necessary is evident from the report of the select committee on steamship subsidies, presented to the house of commons on Dec. 3, 1902. That committee stated that 'out of eleven ships of over 20 knots speed built since 1895 there is only one, the White Star Co.'s Oceanic, which plies under the British flag; and the White Star Co. has been transferred to American control. At present the Germans have obtained in the Deutschland, Kronprinz Wilhelm, and Kaiser Wilhelm II. the fastest mercantile vessels afloat, steaming about 23½ knots an hour.'

"It is recognized by the mercantile cruiser committee that vessels capable of maintaining, for any considerable distance, any such speed as that of the German vessels must be of such size, length and depth of draught as to be excluded from trading through the Suez canal. They cannot be provided from amongst the vessels, 'tramps' as they are sometimes called, by which the general trade of the country is carried on, as, quite apart from all questions of cost of running, such vessels must be of such size and draught as to be able to trade in all the principal ports of the world. They must in fact be maintained, if they are to be maintained, on the north Atlantic trade route, and as part of a regular line owning a sufficient number of vessels of such speed as to enable a constant service to be maintained; as there is no other trade in which they can be employed except at ruinous loss. But even in such trade there is a point beyond which, from a purely commercial point of view, it is impossible to go to secure speed. The subsidies committee refer to the fact 'that after a certain speed, according to the build of the vessel, the cost of every additional knot is enormously disproportionate to the cost of the last,' and the mercantile cruiser committee based their report on 'the amount of annual subsidy which would be required by a commercial company towards making good the loss which would be sustained in peace time by running such vessels.'

"On the north Atlantic trade route the foreign vessels with which this country has to contend in point of speed belong to Germany and the United States of America. The North German Lloyds receive, and have received for many years from their government, an annual subsidy of £280,000. No part of this subsidy is paid directly on account of the company's north Atlantic service, but beyond question the receipt of such a sum, which amounts to 7 per cent. on the whole of the company's capital, has helped it to build up its fleet, which in 1895 consisted of steamships of a total gross tonnage of 217,000 tons, to its present tonnage of about 500,000 tons.

"The United States has for many years past been paying to the owners of the fast American mail ships engaged in the north Atlantic trade £3,000 per voyage, without regard to the weight of mails carried. To other American-owned steamships the United States has been paying for the carriage of mails at the rate of 6s. 8d. per pound for letters, whilst to vessels other than American it has been paying only at the rate of 1s. 10d. per pound.

"The foreign competitors of the British companies on the north Atlantic have therefore had behind them their governments, and it is owing partly to this fact, and partly to their very favorable geographical position, which gives them the whole north of Europe, including our own country, for their gathering ground, that they have been able to maintain in their services vessels which exceed, certainly so far as this country is concerned, the paying commercial speeds.

"The necessity for this country having the command of vessels of as great a speed, with as large a radius of action and with as great a power of carrying troops, as is possessed by the vessels of any other country is manifest. Such necessity was the basis upon which the mercantile cruisers committee was appointed. Its existence was clearly recognized by the subsidies committee, who, whilst advising against the payment of admiralty subsidies merely as retaining fees to secure the use of commercial vessels in time of war, were in favor of the payment of subsidies to secure, at the disposal of the government, vessels having speeds that can only be attained for other than purely commercial considerations.

"The mercantile cruiser committee estimated the amount of annual subsidy which would be required by a commercial company towards making good the loss which would be sustained in peace time by running a vessel of a speed of 24 knots at £110,500, and of a vessel of a speed of 25 knots at £149,000. They further pointed out that such payment might be provided either by direct annual payment, or by the government assisting the company by guarantee or otherwise, to acquire the vessel at a cost less than the commercial market rate. Both the cruiser committee and the subsidy committee insisted on the absolute necessity of vessels built on any such terms being placed under the control of the government in such a way as to preclude the possibility of their transference to foreign control either directly or indirectly. Both committees opened their enquiries before the recent combination in the north Atlantic trade had been effected, and, although their reports were made after the attention of the country had been forced by that combination to the importance of the subject, the necessity for making due provision for the maintenance under the British flag of the fastest mercantile vessels afloat was in no sense created by the combination. At the most the combination has shown that the enquiries were entered upon none too soon.

"The combination although not affecting the question from the point of view of the admiralty as to the necessity for having under its control the fastest commercial vessels afloat, raised other questions of the first importance to the country. Looking back, it

may now be thought that the object of the combine was never to secure a monopoly of the carrying trade on the north Atlantic; or if so, that such an object could never have succeeded even temporarily. But could these reflections have been made if the Cunard company had entered the combine? The country in the summer of 1902 realized what a monopoly, under the control of foreigners, in its carrying trade with the United States would mean, and were prepared to make any sacrifice to guard against it. Now the chances of the establishment of any such monopoly appear somewhat remote; but the peril is there, and it has to no small extent been warded off by the arrangement that was then entered into by the government with the Cunard company. Under this arrangement, the company, its fleet, and its management, is to remain absolutely British; and its business is to be carried on so that there shall be no undue raising of freights or charges for the carriage of goods, and so that no undue preference shall be shown as against British subjects. So long therefore as the company remains in existence it will be the best safeguard against the establishment of any monopoly in the north Atlantic trade.

"It was no small matter for the company to relinquish its absolute right to enter into business combinations with foreigners for the advancement of its own business interests as it might find expedient; but the company has from its formation been British, and its directors and shareholders from the beginning of the negotiations were desirous to play their part in maintaining the nation's interests. The terms of the business agreement between the government and the company have been the subject of most careful consideration, and as they stand they can only be regarded as fair and equitable as between the nation and the company.

"The nation, on its part, will obtain two vessels possessing a speed and a radius of action exceeding that possessed by any vessel, British or foreign; it will secure a mail service under the British flag in the north Atlantic superior to that possessed by any other nation; it will have held at its disposal to purchase or hire on reasonable terms, the whole of the company's fleet for the time being; it will secure the continuance of the company as a purely British undertaking, carrying on at all times its business in the north Atlantic so as not to unduly raise freights or to give preferences as against British subjects.

"The company on its part will receive from the government £150,000 per annum, in addition to a sum equal to the rates it has been receiving up to the present time for carrying the mails; and it will also be granted by the government a loan of 2½ per cent. per annum, repayable over twenty years of a sum, not exceeding £2,600,000, equal to the cost of the two new ships."

GERMAN MERCANTILE MARINE.

Mr. John E. Kehl, United States consul at Stettin, contributes to the state department an account of the present state of the German mercantile marine. The statistics show a total of 3,958 vessels of 3,080,548 tons gross register and 2,093,033 net register. The classes of shipping are 2,236 sailing vessels, 260 sea lighters and 1,463 steam vessels. The steam vessels (forty-six paddle and 1,417 screw) show a register of 2,446,244 gross tons and 1,506,059 net tons. In this connection it may be interesting to give a few figures as to capitalization and number of vessels operated by the leading German companies at the close of 1902:

Company.	Capital stock.	Bonded indebtedness.	Vessels.	Value of vessels.
North German Lloyd.....	\$23,800,000	\$13,863,500	107	\$33,748,400
Hamburg-American Line.	23,800,000	9,305,800	119	34,153,000
Bremen Steamship Co. (the Hansa)	3,570,000	1,071,000	41	5,307,400
German Australia Steamship Co.	2,856,000	476,000	23	4,403,000
Hamburg-South American Steamship Co.	2,618,000	1,190,000	32	5,450,200
German Steamship Co. (Kosmos)	2,618,000	.....	28	3,332,000
German East Africa Line.	2,380,000	1,190,000	18	3,570,000
Argo Steamship Co.	1,000,000	.....	27	2,046,800
German Levant Line	1,428,000	714,000	26	2,308,600

The International Mercantile Marine Co. has the largest tonnage in the world, 1,035,000 registered tons, the Hamburg-American Line coming second with 651,000 tons and the North German Lloyd third with 583,000 tons.

Rear Admiral George Wallace Melville, retired, who is now a resident of Philadelphia, said recently in conversation that he would not consider any commercial offer whatever for his services. It had been reported that he might join some ship building company. If he does anything at all he thinks that he will write an engineering text book. Concerning naval ships of the future, he says that every battleship is a compromise. The engineering department wants all the room it can for engines and boilers and the same is true of the ordnance department. He believes, however, that it is folly to build 13,000-ton battleships. He says that it is impossible to equip such a battleship with everything that is needed.

William G. Garrett and Clarence A. Tucker have been appointed receivers for the Baltimore Marine Railway Machine & Boiler Works, Baltimore, Md.



LAKE SHIP BUILDING.

The big lake ship, 550 ft. long—the new type of freighter that has been talked of for some time past—will be built. Formal announcement of the contract may be delayed, but Mr. A. B. Wolvin and his associates in the lake trade will undoubtedly have such a vessel in commission next spring. South Chicago and Conneaut are for the present the only ports that are well suited for discharge of cargo from a vessel of this kind (she may load at any of the upper-lake ports), but it is the general opinion that more of her kind will soon follow and that other ports will arrange for their accommodation. Prices asked for new vessels are almost equal to those of a year ago, partly for the reason that material is still high, but more particularly on account of uncertainties as to labor. There is therefore little disposition on the part of owners to place new orders. On the other hand builders are not inclined to offer the inducement of reduced prices, as they do not know what difficulties they may encounter in the operation of their works.

Mr. Henry A. Hawgood of Cleveland a few days ago placed an order with the American Ship Building Co. for a freight steamer that is to be a duplicate of the steamer now building for him at West Superior. The new steamer will have a capacity for 7,600 tons of coal and will come out next April. With her completion Mr. Hawgood will have a fleet of five steel steamers. It is now expected that the steamer building at West Superior for Mr. Hawgood will be finished in time to make a trip or two this fall. The new steamer Clemson has just left the West Superior yard. The two Wolvin canalers building at this yard will soon be in commission. One of them, the John Sharpless, should be out in a few days, and the other, named for Mr. H. G. Dalton of Cleveland, is scheduled to leave in about four weeks. Officials at the West Superior yard are figuring on completing in November the Gilchrist steamer which they now have well under way.

CHICAGO GRAIN SITUATION.

Chicago, Aug. 19.—From the general outlook it would seem that we should accumulate a considerable stock of grain here within the next ten days. For a few days past the receipts have averaged about 500,000 bu. of fine grade wheat and corn, according to receiving house purchases, and the indications now are that arrivals will soon be in the neighborhood of a million bushels daily. This movement, coupled with the improved eastern situation, bids fair to yield returns sufficient to offset any temporary decline in the demand for vessels at other points. Improvement of the past week has brought rates up to 1½ cents corn and 1 cent oats for Buffalo; to Georgian bay and Port Huron 1@1½ cents corn, according to character of loading, with Lake Ontario nominally 2½ cents corn. Following are the shipments, lake and rail:

	Week just closed.	Last week.	Same week last year.
Wheat, bu.	269,135	228,867	1,466,958
Corn, bu.	1,456,428	1,355,741	1,126,617
Oats, bu.	1,310,392	645,048	1,590,462
Total	3,035,955	2,229,656	4,184,037
	Since Jan. 1, 1903.		Same time last year.
Wheat, bu.	12,496,187		18,080,006
Corn, bu.	50,100,589		25,001,038
Oats, bu.	40,618,902		34,144,030
Total	103,215,678		77,234,074

Stocks of grain, noted in the following table, again show some increase for the week and a material increase over last year.

	Week just closed.	Last week.	Same week last year.
Wheat, bu.	4,940,000	4,260,000	5,566,000
Corn, bu.	5,842,000	6,159,000	4,070,000
Oats, bu.	4,667,000	4,617,000	1,179,000
Rye, bu.	375,000	372,000	175,000
	15,824,000	15,408,000	10,990,000

CONDITIONS OF FREIGHT.

The lake freight market is in a little better shape than it was last week. The grain trade has picked up a bit and the supply of coal at Buffalo, as well as at Ohio ports, has probably been larger than at any time thus far this season. Coal shippers experienced no difficulty in getting vessels for the head of the lakes but the number of Lake Michigan carriers is still short of the demand.

Dispatch at the ore docks has been very much improved during the past week, but the leading shippers appear to think that the movement for August will not equal that of July. Probably a bunching of vessels at upper-lake ports is the main cause of relief on Lake Erie. Meanwhile rates are steady and there is no indication of change. Unless there should be a decided slump in the ore movement during the fall months, which is one of the fears of the vessel owners, rates are likely to improve. Small carriers in the lumber trade have found prevailing conditions more than they can bear and a number of them, owned along the St. Clair river, are tied up. They are likely to remain so until a better rate tempts them out.

THAT SILVER SPRAY AFFAIR.

Scare heads marked the manner in which the newspapers handled the incident of the Canadian patrol boat Petrel firing upon the American fishing tug Silver Spray of Erie, Pa. Every night editor from Buffalo to Duluth wired his Washington correspondent to ascertain what the United States government was going to do about it, and, of course, there was much pattering of feet along the corridor of the war, state and navy building leading to the state department. The colored gentleman who sits outside the door said that the secretary of state was absent but that his assistant, Mr. Loomis, was in. Mr. Loomis would do. Mr. Loomis was until five or six years ago a newspaper man at Canton and he was really not altogether up on international affairs but he would look into it. Meanwhile the newspapers took the side of the Silver Spray and spoke of the affair as a dastardly outrage. The captain of the Silver Spray declared that there was no warrant for the attack, that he wasn't fishing at all and that the only reason he fled was because he was convinced by the manner in which the Petrel was advancing that it was the murderous intention of her captain to ram him. Therefore, notwithstanding his innocence, he put on steam and scooted to save his crew from drowning. The Petrel then opened fire with her 1-pounder to stop him, but remembering how ill American vessels have fared in the Petrel's clutches, he continued to scoot until he was well in among a score of other tugs when the Petrel ceased pursuit. The weakness of the Spray's position is that it ran at all. If it was in American water it had no cause to run; and if it was in Canadian waters the excuse that it wasn't fishing is too large a pill to swallow. One thing is certain—the Petrel will never fire on an American fishing tug in American waters. Fishing tugs in crossing the line appear to forget that they are violators of American law just as they are of Canadian law. A treaty cannot be made by one nation alone. It is the concern of both. The Spray in crossing the line violated the solemn compact of the American government. It also defied the treaty of the Canadian government. It became an international criminal. Capt. Dunn in firing upon her preserved as much the majesty of American law as he did that of his own country. As a matter of fact the greed of the fishing companies has nigh well depopulated Lake Erie of fish. Canada has borne with patience these insistent and continuous encroachments. She has enacted laws to preserve as much as possible the fish supply and she is justified under the international code in resorting to force when persuasion seems useless. The lesson was drastic but it is likely to be salutary. Fish in Lake Erie should be given a chance to multiply. The lake is only 350 miles long but there are 1,500 miles of fishing nets in it. A few years ago it was possible for a man with a hook and line who had a day off to go out in a small boat and catch a string of fish; but he is lucky now if he gets a single bite for his trouble.

A meeting of the creditors of the Columbia Iron Works, St. Clair, Mich., will be held at the Oakland hotel, St. Clair, to-day (Thursday). The purpose of the meeting is to effect a settlement but what the outcome will be cannot be foreshadowed. Some attempt was made to enlist new capital but with what success is not known. In the legal papers filed the appraisal of property was placed at \$179,475, although the original cost was \$409,156. This reduction is held by many creditors to be too drastic, as for example the value of the steel plates lying in the yard is cut more than half. As the plates are of standard shapes it is the opinion of steel men that there is no practical shrinkage in their value and that any ship yard in need of steel would be glad to get them.

Capt. William Dickson, one of the oldest masters on the great lakes, and who assisted materially in the projection of the Ship Masters' Association, died at Buffalo last week. He was the first president of the association. He was seventy-three years old.

GOVERNMENT WORK ON LAKE SUPERIOR.

Below will be found, briefly set forth, the government work in progress on Lake Superior and also work proposed. Some of the latter is dependent upon further appropriations by congress. Capt. Charles L. Potter, government engineer in charge, writes concerning it:

"At the Duluth-Superior harbor, work was begun the present season on the construction of new concrete piers at the Wisconsin entrance, which are estimated to cost \$925,000. The plan of construction of these piers or jetties marks a departure from anything previously attempted in this line of work, inasmuch as they will consist of concrete from the bottom up, beginning at a depth of 21 ft. below the water surface. Bearing piles will first be driven in an excavated trench and cut off at a height of 3 ft. above the bottom. Forms for the concrete will be placed in the water, consisting of sides and without a bottom, resting on the bottom of the trench and reaching to the water surface, and the mass concrete will be deposited by special buckets in the water, within the forms and around the bearing piles, until the mold is filled. Separate forms will be used for the superstructure, which will rise to a height of 10 ft. above low water. This construction is believed to possess some important advantages, and it will be watched with interest by the engineering profession.

"Port Wing, Wis., is a new harbor on the south shore of Lake Superior, 35 miles from Duluth, which has been partially developed by private enterprise and is now under improvement by the government. The sum of \$25,000 will be expended this season in the construction of entrance piers or jetties, and a revetment, and in dredging. The total cost of improvement as projected is estimated at \$43,000.

"At Ashland the government has begun the work of strengthening the breakwater by depositing rock at its sides and on its top in the form of a large rip rap. The present structure is of rather frail and temporary character, consisting of two rows of piles filled in with slabs and ballasted with rock. It is 1.2-5 miles in length. The greater portion was built fourteen years ago and is in a state of decay. The reinforced work will be in effect a rubble-mound breakwater, having the old structure for a hearting, and is expected to be permanent. The cost is estimated at \$175,000, and about \$29,000 of this will be expended the present season.

"The Portage lake canals, forming the waterway across the Keweenaw Point, will be some further improved the present season by the removal of shoals, at a cost of \$4,000.

"At Marquette the work of building a concrete superstructure for the breakwater to replace the old one of timber is in progress. The estimated cost of the new superstructure is \$233,000 for the entire 3,000 ft. in length, and one-half of it is now built. It will form a substantial and permanent improvement.

"The harbor of refuge at Grand Marais, Mich., situated about midway between the Sault and Marquette, is being further improved by the government, by extending the entrance piers towards the lake. Work on this project is now in progress and will be completed the present season at a cost of \$52,000. The entrance channel between the piers will be deepened by dredging to 18 ft. early next season at a cost of \$11,000. Vessels of larger size can then make use of this harbor."

THOSE GOVERNMENT DREDGES.

In discussing the recent meeting of the dredging interests at Detroit Maj. Dan C. Kingman, government engineer at Cleveland, gave out the following interview:

"It is absurd to say that the government has no right to own and operate dredges. The government today is probably the largest dredge owner in the United States. There are seventy or more of them. And the government has been operating dredges on the lakes since 1835, and owns several here now. As to the right of the government to operate dredges, I guess it has the same right that it has to operate a commissary department or buy, equip and manage a revenue cutter or lighthouse tender. But in bringing to the lakes hydraulic dredges, it is not the purpose of the government to interfere in any way with private industrial effort. At the present time there is not a dredge on the lakes which can do the work the new dredges are designed for. I doubt that such dredges would be profitable in private hands. As to the dredge owners saying they can perform the work cheaper, I am doubtful. The government can hire men as cheaply as they and is saved the additional expense of an inspector for each private dredge. All government work must be performed under the eye of the government inspector. The dredge owners have the wrong idea. Government dredges will do work which will make business for the dredge owners. For instance, I have the authority, as soon as there is money to defray the cost, to dredge for a 25-ft. channel. This would mean that the owners of docks will be anxious to have the same amount of water at their docks, and this would mean work for the individual dredges."

It is needless to say that if Maj. Kingman were not the government engineer he would not talk such stuff. He is a splendid type of man and were he a private citizen, toiling in the ranks, he would perceive at once the enormous heresies which he is preaching. It is curious how self-interest will blind a man to that which is apparent to everyone else. What intellectual knots one may tie in one's conscience when it is to one's interest to make one's conscience conform to one's desire. Maj. Kingman knows well enough that there is absolutely no analogy between the commissary department of the army and a suction dredge. There are

not any firms in the business of running army restaurants or following the troops with meat and vegetables. But there are firms in the dredging business. Their money is in it; all they have in the world is in it; and yet Maj. Kingman comes along with the limitless resources of the government back of him and competes with them. What does he care how much it costs? What does he care if his dredge becomes scrap in a year or two? He will build another out of the same capacious purse. His contention that there are no suction dredges on the lakes is not tenable. If there is work for a suction dredge to do capital stands ready to build the dredge. A government does not grow great by robbing its citizens of work. It grows great by stimulating private enterprise, by the widest dissemination of labor and the consequent wide distribution of wealth. Each succeeding government dredge is a blow at private industry.

TROUBLE WITH THE FIREMEN.

Of all the varieties of trouble which vessel owners have had with labor during the present season that with the firemen has been most varied and most picturesque and has gone quite beyond the most resourceful vocabulary of expletives. Last week the firemen of the steamer Eastland struck in midlake because they were not served with mashed potatoes. The appalling insult of a boiled potato was offered to them. It was useless for the cook to explain that the potatoes were in process of being mashed, that the first supply had just been exhausted and that more would be forthcoming immediately. They declined to stoke. It was necessary for the officers of the steamer to arrest them and lock them in one of the cabins, and as soon as the steamer reached port with the aid of volunteer firemen and a couple of regulars who had remained at work the mutineers were sent to jail. Then the business agent of the firemen's union, David McKiffin, declared a strike of firemen against the Eastland; and as quickly again he declared it off, being apparently rebuffed from headquarters. The Eastland later resumed her runs with a full quota of union firemen while the mashed potato brigade remained on shore under bond. But the troubles of the Eastland were by no means over. There is a small tug in the harbor of South Haven which glories in the expressive appellation of Pup. Pup, while no bigger than a yawl, is a scrappy little craft and its mission in life is to turn the Eastland around. Pup's crew is not union and when the tugmen's union discovered that it forbade any assistance being rendered to the steamer at Chicago. However, this has not so far proved a serious handicap as the steamer has been able to make its dock without assistance.

Now the Eastland has a contract, along with the rest of the vessels enrolled in the Lake Carriers' Association, with the firemen's union. Everyone knows that the firemen are being paid a rate of wage which it would be impossible for them to earn in any other calling and which is far higher than any rate paid on other waters for similar work. Why cannot they observe the letter of their contract? Cannot their leaders appreciate the fact that it will be with extreme reluctance that any contract is entered into with them next year? The owners of the steamer Eastland have been very badly treated by the firemen.

STEEL CORPORATION MAKES A BIG PURCHASE.

Duluth, Minn., Aug. 19.—The United States Steel Corporation has just closed a most important purchase of ore properties. It has bought outright the mining leases on all the properties of the Chemung Iron Co. of Duluth, covering eleven large Mesabi range mines, and amounting in tonnage so far shown up to about 70,000,000 gross tons of merchantable ores.

This deal has been under negotiation for some time. The Chemung properties represented the last big block of independent Mesabi ore that was to be bought, and though there are many millions of tons held in small lots by different owners there is no such tonnage as this in any single ownership excepting that of the Great Northern Railway. The purchase has, therefore, further cornered the ore market of the Lake Superior region, and in this fact lies its greatest importance.

It is understood that the purchase does not require any large immediate payment, but that the terms are for payment as the ore is mined, which may take a great many years, and that the price is very moderate.

The Steel Corporation is already making preliminary arrangements for the opening of one open-pit mine on these lands and may proceed with the opening of a steam shovel property during the coming winter. The ores bought vary in character and quality, but are all merchantable and many of them are Bessemer ores that may be cheaply produced.

EASTLAND'S CHALLENGE ACCEPTED.

In accepting the challenge of the Michigan Steamship Co. for a race between the new Lake Michigan passenger steamers Eastland and the City of South Haven, the Dunkley Williams Co. make the following announcement:

"We will race them any time they wish; let them name the stakeholders and designate the route and we will accept any other reasonable condition they suggest. The only provision we insist upon is that there shall be no passengers on board, and we would also desire that the winning company donate the money to some charitable organization."

The race will not take place until after the excursion season is over.

ERIE CANAL ENLARGEMENT.

New York state continues in the throes of the barge canal discussion. The railways are making every effort to prejudice the farmers against the enlargement of the canal to admit barges of 1,000 tons capacity. A lot of well-intentioned people holler with them; but for what reason is beyond ordinary comprehension. If any one opposes the project he does so for a selfish reason. He does so because he has some axe to grind. The railway's axe is freight. Railways in the natural condition of things cannot haul freight as cheaply as a waterway. Trade will, of course, seek the cheapest channel. That the railways should oppose the canal project is natural but that others, who would really be benefited by it, should oppose it also merely proves that the great mass of the people do not think. The enlargement of the canal would create another adequate avenue of transportation. That means that both producer and consumer will be benefited. Facility of transportation is the underlying cause of the world's prosperity. If the railways could only see it the canal would benefit them also, because it would multiply industry and create more things to ship. There is an infinity of freight which would never go by canal, consisting mainly of small packages and quick delivery stuff. A canal will never do an express service but it will transport grain and other bulk freight at a figure so low that the railways cannot hope to compete with it.

At a recent dinner given at Utica, N. Y., by the State Canal Improvement Committee, of which Mr. Gustav H. Schwab is chairman, a very sensible speech was made by Mr. Griffin, a Kirtland farmer. The stock argument of the opposition has been that the farmers of New York state are to be taxed to permit the grain of Western states to pass through their domain to New York city without contributing one cent to their earnings—in other words to tax the New York farmer for the benefit of his Western rival. Griffin is no play agriculturalist whose product of milk costs, quart for quart, about the same as champagne. It didn't take him a minute to expose the fallacy of the argument. The New York farmer, he declared, is a customer of the Western farmer, and not his competitor. The farmers of New York buy their feed for their live stock from the Western ranges and they have figured up the effect of freight rates on the prices they pay. When the canal opens in the spring, even in its present decrepit condition, the freight rate drops to a lower level. This was a page from the ledger of real life that the opposition did not expect, and those metropolitan journals, which have been almost worried to death over the appalling blight that would fall upon their state agriculturalists should the canal be enlarged, may now pluck up hope.

The proposition to enlarge the canal is to be submitted to a vote of the people this fall. It ought to pass; but it must be admitted that it is questionable whether it will pass. As a rule questions of this sort, however meritorious, are overlooked by the voter. He votes his ticket straight, as a rule, and overlooks the printed slip at the bottom relating to the special question submitted. The result is that he does not vote upon it at all, and these votes, of course, count as negatives because the question must obtain a majority of all votes cast.

GALOUP DAM TO BE BUILT.

Last week Maj. Theodore A. Bingham, government engineer with headquarters at Buffalo, held a public hearing at Ogdensburg to ascertain whether the construction of a dam across the channel between Adams and Galoup islands would materially affect the level of Lake Ontario or the rights of any citizens of the United States. The Canadian government has constructed a new channel to the head of the St. Lawrence rapids, and finding that strong cross currents interfered with traffic in the channel by forcing many vessels aground, petitioned the United States government for permission to construct a dam 300 ft. long at low level to obviate the difficulty. At the hearing there appeared on behalf of the plan A. W. Fraser, counsel for the Canadian government; T. S. Rubidge, superintending engineer of the Canadian canals, and representatives of the George Hall Coal Co. and the Ogdensburg Coal & Towing Co. The plan was opposed by Alban Dawson, owner of Galoup island, on the ground that it would submerge sixty acres of the island. Dawson filed an objection to further proceedings.

After the hearing the government concluded to make a settlement with the owners of the land, compensating them for damages, and the dam will be built as soon as satisfactory bids are received for its construction.

MASTER AND ENGINEER.

It is announced that the Masters and Pilots' Association are desirous of entering into a new arrangement with vessel owners whereby the masters may employ the entire crew, including the engineers. Of late years the engineers have been engaged by the managers, an arrangement which the engineers like very much indeed, and the Marine Engineers' Beneficial Association will fight any attempt to change it. In theory the master should have charge of the entire crew. He is responsible for the vessel and is the representative of the owner on board. But practice on the great lakes during the past few years has not altogether borne out this theory. The engineer, hired by the owner, and in some cases paid more than the master, is not a tractable person when the question of authority comes up between the master and engineer. That there should be this division of au-

thority is, of course, unfortunate, but it is one for which the owners are, in part at least, themselves to blame. They have taken away from the master the right to hire the engineer. On the other hand the owner probably feels that as long as the master is joining associations to advance his own salary that he is not, after all, in every sense of the word, the representative of the owner on board.

MR. GOULDER RETURNS FROM EUROPE.

Mr. Harvey D. Goulder of Cleveland returned this week from a three months' trip to Europe which he took as a traveling companion of Congressman T. E. Burton, chairman of the committee of rivers and harbors. It was Mr. Burton's mission to inspect very thoroughly the waterways of Europe, their improvement and to determine what proportion of cost is borne by the state and local interests. Upon this point Mr. Burton was obtaining all the information possible, compiling and arranging it, but up to the time Mr. Goulder left he had reached no conclusion in his own mind.

"I believe," said Mr. Goulder in speaking of his trip, "that the thing which impressed me most was the tremendous traffic of the Rhine. Traffic is carried in vessels which are called Rhine barges. They are equipped with masts which may be taken down, have small sails and some of them have steam power. They are very long and have a carrying capacity of 3,000 tons on 10 ft draught. We left Rotterdam early in the morning and rode on a steamer until well into the afternoon, surrounded with barges going both ways so thickly that at times we were scarcely able to move. The traffic is simply enormous. The same is true of the Seine from Paris to the sea but not in such proportion.

"The next thing which impressed me was the elaborate character of the construction. For example they build a dry dock so solidly that there is no chance to enlarge or modify it. Its construction is permanent in character. Another thing—they build their quays of solid masonry or concrete and I noted in Barcelona an elevator of stone of very solid and grand construction with ornamentation. The quay, too, was surrounded with a very handsome stone wall—all quite elaborate and expensive. There was a solidity and corresponding cost which I did not feel quite satisfied with because they are having the same kind of progression that we have. Ships are getting bigger all the time and terminal facilities are constantly being taxed. In the interior ports, such as Bordeaux and Amsterdam, they are having trouble owing to the increased draught required."

DEATH OF CAPT. D. R. McLACHLAN.

Capt. D. R. McLachlan, one of the oldest and best known of lake vessel masters, has passed away. He died at his home, No. 49 Root street, Cleveland. He was seventy-three years of age. Capt. McLachlan began his career as a sailor as a boy and for thirty-five years he was connected with the Detroit & Cleveland Line. He first sailed for the D. & C. on the old City of Cleveland and later on the May Queen. Later he shipped on the Morning Star as first mate. He was on the Morning Star when she was sent to the bottom in collision with the bark Cortland. This disaster occurred off Black river in 1867 and cost thirty-five lives. He was then made master of the steamer North West and sailed her for awhile. Later he was transferred to the old City of Detroit, and when the present steamer of the same name was built he was put in charge of her. Capt. McLachlan was all his life an uncommonly active man and was well regarded by all who knew him. He is survived by four children—A. D. McLachlan, E. A. V. McLachlan, Miss Thame McLachlan and Mrs. George W. McCallum of Detroit. It was from the home of Mrs. McCallum that the funeral services took place. The interment was at Alvinston, Ont.

STAGE OF WATER ON THE LAKES.

Gage records of the United States Lake Survey show the following mean stages of water above mean sea level, for July, 1903.

	Stages during July.	Higher	Lower	Higher	Lower
		than during same month last year.		than during July, 1895.	
Lake Superior.	602.55 Ft.	0.23 Ft.		0.21 Ft.	
Lake Michigan	580.35 "	....	0.05 Ft.	0.67 "	
Lake Huron.	580.24 "		0.04 "	0.52 "	
Lake Erie.....	573.07 "	0.24 "	....	1.52 "	

Present fall, Lake Huron to Lake Erie, 0.28 ft. less than a year ago.

By a clerical error in the table for June, the stage of Lake Superior was stated to be 1.29 ft. higher than during the same month last year. The amount under this column should have been given as 0.29.

Capt. E. O. Whitney of the Pittsburg Steamship Co.'s whale-back steamer E. B. Bartlett, has been fined by the Sault river patrol officials. The Bartlett, herself towing a barge, is charged with having passed the Lizzie Madden and tow in Little Rapids cut, both going in the same direction. It is said that Capt. Whitney of the Duluth boat does not deny that he committed the breach of river law, but excuses his action on the ground that the Madden was steaming too slowly.

WHY VESSELS LOSE THEIR BEARINGS AND STRAND.

By John Maurice, Civil Engineer and Nautical Expert, Chicago.

Among the many causes contributing to shipwreck, the exclusive use of the floating or patent log aboard ship is a principal one. These logs are influenced by currents, causing an error in position, which is the larger the longer the distance run, or the longer the time required to run a certain distance.

On a ship under way three forces are acting: First, the propelling force in the direction of the fore-and-aft line of the ship; second, the forces of wind and waves, or the weather force at a certain angle with the former; third, the force of current, also at a certain angle with the first one. The distance and direction the ship is carried by the combined action of all three forces constitutes her course and distance made good from a certain point of departure.

In the accompanying diagram A is the starting point; A B the distance due to the propelling force; B C the distance due to the weather force; C S the distance due to the current force. The propelling force alone takes the vessel from A to B; the propelling and weather forces combined take her in a straight line from A to C; all three forces combined take her in a straight line from A to S. A B is measurable by the floating or patent log when weather and current forces are zero; A C is also measurable by the floating or patent log when no current prevails; but A S is not measurable by these logs, because of their partaking of set and drift of current. According to the greater or less force of the current, the vessel drifts a greater or less distance, and as vessels possess no instruments for ascertaining set and drift when under way, they simply ignore currents and assume the ship to be in C instead of S, in violation of plain mathematics and common sense; which, in fog and thick weather in the vicinity of land, carries with it the punishment of shipwreck. For, if at S is a shoal, reef or the hidden shore, the vessel is sure to strand under the delusion of being in C instead of S.

This explains why navigators after stranding frequently assert that according to their reckoning the ship was so and so many miles from the place she fetched on, thereby declaring that they ignored the current; but as this practice is universal, they are exonerated from blame.

The malpractice of using the floating log in the vicinity of land since time immemorial has cost millions of people their lives, besides the loss of an immense amount of treasure and property, but the human race has not become any wiser for it. Instead of going to the root of the evil, double bottoms, watertight bulkheads, life rafts, life preservers, life saving stations, lighthouses and fog signals are resorted to to lessen the calamity of shipwreck.

The epitomes of navigation tell sailors to include set and drift of current in their daily work or reckonings, but they do not tell them how to find set and drift without astronomical observations, bearings or soundings previous to stranding. How lightly the subject of current sailing is universally treated! Great Britain, owning half the world's tonnage, furnishes an interesting specimen. In the examinations of ship masters by any of the marine boards the only problem relating to current sailing reads: "Given the bearing of the port and the set and drift of the current, to shape a course so as to keep the port on the same bearing." (See Rosser's Self Instructor, page 104.)

As it is, the problem cannot be solved, because, in the first place, the distance of the ship from port is wanting, and in the second place the rate of the vessel's speed and of the current is not given. Without these additional data it is impossible to determine the course to be steered. But the boards have a solution which draws a line through the port in an opposite direction parallel to the set and equal to the drift, and from the point thus obtained a straight line to the ship is to indicate the course to be steered—a solution which demands that the rate of a vessel's speed is to the rate of current as the length of the course line found is to the drift; in other words it demands to adjust the vessel's rate of speed to the rate of current. So much is current sailing practiced by the English claiming to be the peers at sea.

But let us return to our diagram. While the vessel is headed by compass on the course indicated by A B, all three forces combined cause her to move in the direction of A S. Therefore to find her position on this line, at any time, it is necessary that the angle B A S be known, and also her speed over the ground on the line A S, which knowledge is obtained by using the ground log.

The ground log consists of a heavy weight attached to a line divided into a forerunner and knots, the forerunner to be of sufficient length to admit the weight of touching the ground before any of the knots run out. The length of knots is 25.3 ft., answering to 15 seconds in time, but the sand-glass used is only 14 seconds, one second being allowed for turning the glass and stopping the line. The knots thus logged require a correction for depth of water, which is easily computed in advance and tabulated. The difficulty of handling the ground log increases

as the depth of water increases; its use is therefore limited to a depth of about 100 fathoms.

As the ground log remains exactly in the track of the vessel, the ground log line indicates the direction of the course made good, and the angle which the horizontal projection of the line forms with the fore-and-aft line of the ship is the course correction for leeway and current combined.

By using the ground log, vessels can never lose their bearings and get stranded, if the point of departure is exactly known. An error in the point of departure causes as large an error in all subsequent positions by compass and log; therefore vessels making land have to make sure of their position before entering the 100-fathom curve and bringing the ground log into play.

A great many shipwrecks would be prevented by abating the nuisance of using the floating or patent log in the vicinity of land; but the monopolists of nautical science and old-timers are not yet prepared for such reform.

MORE COMMENT ON LIEUT. FAUST'S ARTICLE.

Col. Wm. P. Anderson, chief engineer of the department of marine and fisheries, Canada, comments in a very interesting way on the article "Problems of Lake Navigation," by Lieut. Faust, U. S. N. (Ret.), which appeared in the Review of Aug. 6. Col. Anderson's attention was directed to the article. He says:

"In the main I quite agree with Lieut. Faust in his views, though I doubt whether the ordinary methods of ocean navigation will ever be available to any great extent on the lakes. I have always admired the skill of lake mariners as pilots, and I think that owners must depend on the abilities of their masters as pilots rather than as navigators for the safety of their vessels.

"I indorse most thoroughly every word that Lieut. Faust says respecting the necessity of teaching masters the proper use of their compasses and to depend more on soundings than they do. I would add to the requirements for masters enumerated, that they should be supplied with sextants and taught the use of them in accurately fixing the positions of their vessels at any time.

"It appears to me that the Lake Carriers' Association could force the government to take up the matter of the better education of masters and mates by themselves establishing a school and teaching all the points enumerated in Lieut. Faust's article, together with the use of the sextant. They could compel masters to attend by refusing to employ men who had not taken a course of instruction at the school, and within a very short time the government would be very willing to take over the management of the institution. I believe that such instruction would pay for itself many times over both in actual saving of vessels and in the ultimate reduction of insurance rates.

"I believe, too, that if the Lake Carriers' Association prepared a standard specification of instruments required for the proper outfit of a ship, including the proper fixture and adjustment of a binnacle compass, and the provision of a cheap mechanical sounding machine, owners would be glad to provide them and fit them as specified; or the association could force them on stingy owners.

"The dangers of over-insurance pointed out by Lieut. Faust are very real ones. There is always a tendency on the part of owners to relinquish their vessels to the underwriters as soon as they get into trouble, without making any intelligent effort to save them. Possibly the mean way in which they are treated by some insurance companies when they do succeed in saving a vessel may be partly accountable for this tendency. The evils of over-insurance have not been felt very severely lately, because the shipping trade is prosperous. If hard times set in, the system would quickly prove disastrous to the insurance companies. This, however, is a subject outside my particular province and I have not given it much attention."

PROBLEMS OF LAKE TRANSPORTATION.

Lieut. W. H. Faust of Buffalo says of the comment that appeared in the last issue of the Review regarding his article on "Problems of Lake Transportation":

"I was much pleased to read in your last issue that such men as Mr. Geo. L. McCurdy and Mr. C. E. Kremer, both of Chicago, had been sufficiently interested in my article to comment upon it. It would give me great satisfaction if these men, as well as all others interested in lake commerce, would give this article sufficient thought to criticize and discuss it in every important point. In no other way can an idea be as fully developed and made as practical as when viewed on its different sides by different minds.

"My own view of the part the marine underwriters might take in their efforts to minimize accidents is in entire accord with Mr. McCurdy's. From Capt. Froude's horizon any expected action from them to introduce improvements might be 'purely visionary,' but this horizon seems to be limited to his immediate locality. A bare knowledge of the work done by Mr. Ritherdon should have shown him that it was not necessary to go out of England to prove the practicability of the idea. Nor does the fact that Mr. Ritherdon was acting for a government instead of underwriters make any material difference in the question of practicability. What has proved so eminently successful for one employer would, under the same or an equal mind, be just as successful for another.

"I also believe that masters of vessels are willing to go more than half way to meet the underwriters in their endeavors to in-

roduce improvements. Such a meeting, however, is not in sight, nor will it be unless something happens to stir the underwriters to action. They apparently are satisfied with existing conditions. As long as they continue to make their present profits and continue to fix their premiums by summarizing their losses we can hope for no co-operation from them.

"My experience as a teacher has decreased my respect in the importance of single examinations. Too many men are capable of acquiring a superficial knowledge of important subjects in an incredibly short time; but they as soon forget them after the examination is over. I do not mean to convey the impression that much good could not be done by raising the standard of efficiency, as suggested by Mr. Kremer, in the matter of the selection of the inspectors. There is much room for improvement, it is true, but there is lacking the direct financial interest that will make any improvements permanent."

AROUND THE GREAT LAKES.

At Conneaut work of removing the old piers has been started, preparatory to the erection of two new concrete piers.

The steamer *Luna* of the People's Ferry Co., which was partially destroyed by fire at Delray near Detroit early in the season, has been sold at auction to Charles F. Ryan of Buffalo for \$716.

United States authorities at Cleveland are proceeding against vessels that dump ashes and other refuse in the harbor. Owners of the tug *Kunkel Bros.* have been called into court on account of a charge of this kind.

The Donnelly Salvage & Wrecking Co. will endeavor to raise the steamer *Parsons* which struck a hidden obstruction in the St. Lawrence and sank near Cornwall. The *Parsons* was bound from Oswego to Montreal with coal.

Capt. C. E. Copeland, who has been sick for some time, has resigned command of the Steel Corporation steamer *Rensselaer* and Capt. A. E. Huff of the barge *Fritz* has been appointed in his place. Capt. John T. Gammell of the barge *131* takes the *Fritz*.

The Canadian government has bought the small steamer *Vailor* from Howard S. Folger of Kingston. The vessel will be used as a patrol in connection with the supervision of buoys along the St. Lawrence river between Kingston and Montreal.

A movement has been started in Chicago to remove the unused Illinois Central railway's bridge from the river near the harbor's entrance. The estimated cost of removal is \$6,000 or \$7,000 but the railway company is reluctant to bear any part of it.

The government dry dock at Collinwood, Ont., was formally opened on Wednesday. It was built under the direction of Lewis Coste, chief engineer for the government. The length of the dock is 525 ft. and it is capable of receiving the largest vessel at present afloat on the great lakes.

The *Tadousac*, a steel steamer for the Canadian grain trade, was launched at the Bertram works, Toronto, for *Waldie & Wright* of Toronto last week. She is 260 ft. over all, 43 ft. beam and 25 ft. 6 in. deep. She will carry 120,000 bu. of wheat and will cost, when completed, \$140,000.

The Seamen's union dealt very summarily with four of its members who created trouble on the steamer *Cherokee* at Detroit. One of the watchmen had a little difficulty with the master of the vessel and two wheelmen and a watchman quit with him. The union fined the men \$5 each and revoked their membership books for thirty days.

Last week the gate of the enlarged dry dock of the American Ship Building Co. at the foot of Weddell street, Cleveland, was tested and found to fit perfectly. This dock is now the largest dry dock but one on the great lakes. Its dimensions are: Length over all, 600 ft.; length on blocks, 550 ft.; gate, 70 ft.; top, 115 ft.; depth over sill, 10 ft.

James J. Larmour, postoffice inspector, advertises elsewhere in this issue for a steam vessel with crew fully equipped for marine postoffice work on the Detroit river and to undertake a contract covering a period of ten years. All necessary information as to the service may be had from the postmaster at Detroit. Proposals will be opened at Detroit Sept. 10.

About Sept. 1 a fixed red lens-lantern light illuminating the entire horizon, will be established, 36 $\frac{1}{4}$ ft. above mean level, in the structure recently erected on the north breakwater, at Buffalo, about 30 ft. from its southeasterly end. The structure is of iron, bottle-shaped and painted white. On the same date the present temporary fixed red post-lantern light will be discontinued.

About Aug. 20 the work of increasing about 20 ft. the height of the light tower on the east end of the west breakwater at Cleveland will be completed and the focal plane of the light will then be 55 $\frac{1}{2}$ ft. above mean lake level and the visibility of the light will be increased to 14.9 statute miles, the eye of the observer 15 ft. above the water. The exhibition of the light will not be interrupted.

The old United States revenue cutter *Fessenden* is now on her way to the coast. At Buffalo her port wheel and guard were removed so that she could be towed through the Welland canal. They will be replaced at Montreal. The *Fessenden* is bound for Baltimore where she will be docked for a thorough overhauling preparatory to leaving for her permanent station at Key West, Fla.

A Duluth dispatch says that for violating the rules of navigation in regard to proper signaling and the safe rate of speed during foggy weather, Capt. C. H. Cummings of the steamer *Mauna Loa* and Capt. William Hutchins of the tug *Gillen* have

been suspended by Steamboat Inspectors Monaghan and Chalk for thirty days each. The penalty comes as the result of the sinking of the *Gillen* off Duluth harbor by the *Mauna Loa*.

According to a Detroit newspaper, Capt. Harris W. Baker was given a tremendous ovation at the Riverside hotel, St. Clair flats, in honor of having raised the wreck of the burned steamer *Stimson* and thereby removed a very dangerous obstruction from the channel. To show their appreciation the newspaper states that 500 "flatters" gathered at the hotel and discussed a fat porker. No doubt the porker was a fat one if it satisfied 500.

Vessel masters who are desirous of keeping fully in touch with the work of the United States lake survey—keeping their charts corrected so as to show all new shoals and other obstructions—should send to the lake survey office, Campau building, Detroit, an address to which bulletins and supplements may be mailed to them. The latest bulletin contains sections of charts showing new shoals in Rock Island passage, Lake Michigan, and also new shoals near Wind Point, Lake Michigan.

Here's a gem from the mass of advertising matter regarding the service of the Cleveland & Buffalo Transit Co. that is constantly being sent out by Passenger Agent W. F. Herman: "Some time twixt spring and the wane of the year you should avail yourself of nature's bounteous and soothing passageway between Cleveland and Buffalo. Go often. Be continuously merry. The great chain of unsalted seas present as pretty a water-color picture as you could desire to brush against. The humdrum monotony of everyday life becomes but a fleeting remembrance, care and ennui give way to the restful delights of the present and you GET YOUR MONEY'S WORTH. We have a fleet of powerful, commodious and magnificently appointed steamers, which ply between the cities of Cleveland and Buffalo nightly, and Toledo each day."

CANADIAN SHIPPING NOTES.

The C. P. R. is considering the advisability of installing steam turbine engines on its upper-lake steamers.

The Algoma Navigation Co. is negotiating with the Bertram Engine works, Toronto, for the construction of a steel steamer of about 700 tons gross, and having sleeping accommodations for 110 passengers, for a service between Owen Sound and Sault Ste. Marie.

Traffic through the Soulanges canals of the St. Lawrence for May and June shows a decrease of about 7,000 tons when compared with the same period of 1902; while the traffic through the Cornwall canal has increased from 23,500 tons in May and June 1902, to 60,072 tons in 1903.

The Hudson Bay Company's steamer *Inenex*, built at the P. & L. Iron Works, Toronto, in 1902, as a trading boat for Hudson bay coast ports, has not got beyond St. Johns, N. F., owing to a succession of breakdowns. After being thoroughly overhauled, the steamer left St. Johns, recently, and was towed back disabled last week.

The Red River Navigation Co. has been incorporated in Manitoba to carry on a general navigation business on the Red river and Lake Winnipeg. The offices are at Winnipeg, Man. the capital is \$20,000 and the incorporators include Hon. E. Rogers, Capt. L. Bellefleur, D. E. Sprague, I. M. Rose and J. McDiarmid.

John Moodie is president, C. Birge, vice-president, and G. Hope, treasurer, of a Hamilton, Ont., company which is making application for an Ontario charter to operate a line of passenger steamers between Hamilton and Toronto. It is proposed to purchase one or more turbine steamers in Scotland, the first to be placed on the route next year.

The steamer *Senlac*, now under construction at St. John, N. B., for the St. John, Yarmouth and south shore route, will be launched by the end of August. Her dimensions are: Length over all, 187 ft.; beam, 32 ft. 6 in.; depth, 16 ft. 6 in. She will be fitted with fore-and-aft compound surface-condensing engines, 20 in. and 40 in. by 30 in.; and two Scotch boilers, 10 ft. 6 in. by 12 ft. 6 in. The Thomson Co. are the owners.

The steamer *Neptune* sailed from Halifax, N. S., Aug. 22 with the Dominion government expedition for the exploration of the Hudson bay on board. One of the objects of the expedition is to enforce the fishery laws in the bay and to formally take possession of the waters in the name of the Canadian government. Reports at Ottawa state that it is intended to declare the bay to be a closed sea entirely under the jurisdiction of Canada.

The Neebing Navigation Co. has been incorporated in Ontario, with offices at Port Arthur, and a capital of \$25,000, to carry on a general navigation business. G. T. Marks, H. A. Wiley and F. S. Wiley are the provisional directors. The company is having constructed in England a steel steamer, the *Neebing*, which is expected to reach Port Arthur early in September. Her dimensions are: Length, 250 ft.; breadth, 42 ft.; depth, 25 ft. She will have a capacity of 3,000 tons when drawing 18 ft.

Capt. J. C. Sanford, government engineer at Philadelphia, is advertising elsewhere in this issue for bids for the construction of a wooden, single-screw, suction dredge for use in Key West harbor. The bids will be opened on Sept. 21.

The steamship *Missouri* for the Atlantic Transport Line (now a part of the International Mercantile Marine Co.) was launched at the yard of the Maryland Steel Co., Sparrow's Point, Md., on Thursday of this week.

FACTS IN FAVOR OF THE ENLARGED CANAL.

At the recent dinner which was given at Utica by the State Canal Improvement Society several very sensible speeches were made by New York state farmers in which they very fairly punctured the argument of the opposition that the enlargement of the canal would be a useless burden to the farmer. When it came down to actual facts the speech of Philo W. Casler of Little Falls, N. Y., was about the best delivered. He showed item by item, the saving and cost in feed and coal and other commodities which might be secured by means of an improved waterway. The New York farmer is not especially interested in raising feed for his cattle. He finds that he can buy it cheaper of his western compatriot and he wants it delivered to him at the lowest possible cost. Among other things Mr. Casler said:

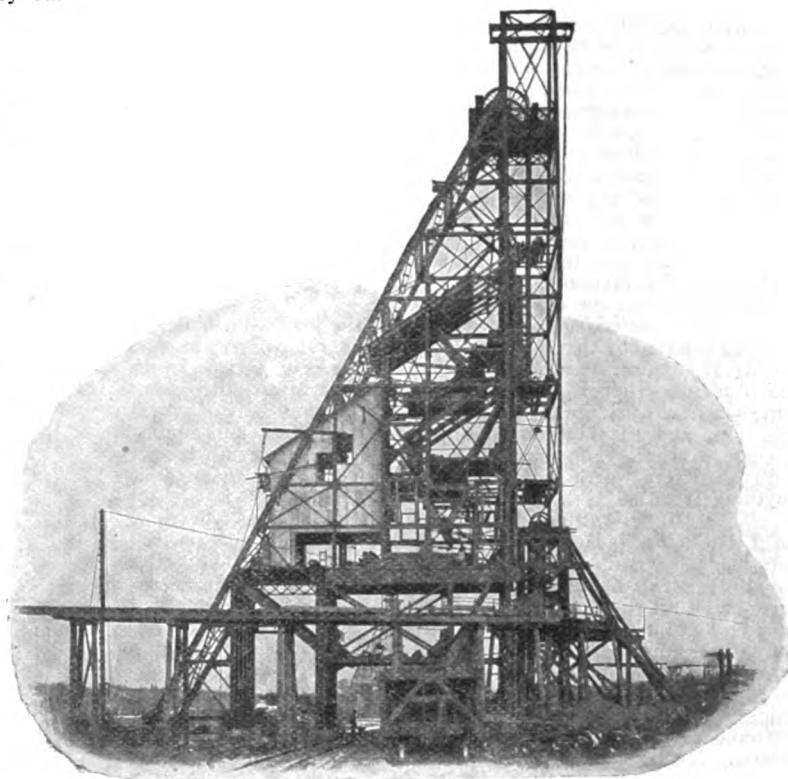
"There is so much that I would like to say in favor of the proposed new waterway through our state that with time limited I am at a loss to decide just what to bring out. What I want most to do is to say a few words from the standpoint of the farmer. I own at Little Falls a farm on which I live and on which I hope my children will live as my ancestors have before me for nearly 200 years. One of the first things I did when this canal question came up was to determine just how much it would cost me in taxes on my farm should the state be allowed by the vote of the people to issue bonds for this great improvement in its transportation facilities. Our comptroller has figured it all out and stated that a tax of \$1.20 per \$1,000 of assessed valuation will create a fund sufficient to pay the interest on \$101,000,000 and liquidate the principal in eighteen years. My assessment is about \$5,000, so it would cost me \$6 per year, or \$108 in the eighteen years (providing it is raised as a general tax—and we have every reason to believe that it will not be), as my share of the 'terrible burden of taxation' which our friends, the anti-canal men, tell us will rest on the shoulders of our 'children and grandchildren for generations yet unborn' should we sanction the measure by our vote. Well, what returns would I get for this extra tax of \$6 per year? The friends of the canal tell me—and its enemies, too, so it must be true—that it will make the western feed I have to buy for a sixty-cow dairy cheaper whether it comes by rail or water. Well, 50 cents a ton on the feed I would use will pay the tax increase twice over. I use 12 to 20 tons of coal every year, and my coal dealer tells me the canal now makes a difference of 50 cents per ton on coal freights, and that if we had no canal coal would cost at least \$1 per ton more in Little Falls than it now does. The grocers tell me that flour and sugar and salt are all cheaper on account of being able to get less than car load rates by canal at lower prices than they can be got by rail, and that the rail rates are much lower than they would be were it not for the canal. The fruit men tell me that they could not run their business were it not for the facilities which the packet traffic affords for getting fruit promptly and cheaply from the distributing points along the canal. So when I came to sum it all up I found that practically on everything I had to buy I had been making a saving because of canal transportation, or competition making low freights. I was naturally interested in the subject by this time and curious to know how the proposed barge waterway would increase the advantages now enjoyed from our present system of waterways. Knowing that a committee had been appointed by President Roosevelt when governor to investigate this very phase of the question, I took pains to get a copy of their report from the governor, and found it to be one of the most complete, convincing and interesting documents which could be prepared on a subject of this character, and I am surprised that it is not published and generally circulated by our canal committee; for it will do more to convince the voters that their interests lie in giving this measure their unqualified support than any amount of unsupported arguments and statements which can be made by speakers or through the press. After reading it I became a thorough convert to the barge canal proposition; before that I had some leanings towards the ship-canal project. A statement that the improvement of this highway for transportation is practically a state issue and that the benefits to be derived from it are almost entirely those which will come to this state caused me to inquire into the particulars of the traffic which we have had on our canals. I sent for the report of the superintendent of public works on our canals for 1901 (the 1902 report is not yet printed), and as this canal question is not a very dry one except in the winter, perhaps you will pardon me if I refer to some of the figures which were interesting to me in this report:

"The total tonnage for 1901 was 3,420,613 tons. This was an increase over 1900 of 74,672 tons. The way freight was 2,108,087 tons, or about two-thirds of the whole, while of the through freight 453,904 tons were shipped to the west. Now of the grain of all kinds from the west that we hear so much about and which is considered by many to constitute the bulk of canal freights, there was 356,804 tons, or just about 10 per cent. of the entire tonnage of the canals. The expense to the state on all the canals for 1901 was \$972,633, so that it cost the state just 28 cents per ton for the amount of freight handled. The Erie canal carried 2,257,035 tons that year and its share of the state expense was \$530,000, making the cost to the state on this traffic 23½ cents per

ton. For the fifteen years, 1883 to 1898, after tolls had been removed, the expense to the state for each ton carried on the Erie canal was 14 cents. Those siding with the railroads on this canal question are making statements to the effect that the state is paying over \$2—\$2.37 I think it is—for every ton of freight handled on the canal. You will probably be surprised, as I was, to learn the variety of merchandise handled on the canal."

Mr. Casler read a long list showing among other articles, cheese, 218 tons; butter, 2 tons; pork and beef, 260 tons; lard and tallow, 416 tons; wool, 47 tons; hides, 92 tons; apples, 305 tons; potatoes, 13,483 tons; dried fruit, 335 tons; hemp, 874 tons; clover and grass seed, 101 tons; flax seed, 30,209 tons; hay, 42,431 tons; oil meal cake, 1,224 tons; salt, 100,080 tons; sugar, 81,728 tons; phosphates, 30,114 tons; ashes, 1,455 tons, etc., and closed by saying:

"New York was not always the empire state if imperialism depends on wealth, population and commerce. Pennsylvania in 1820 had more wealth and a larger population than did our state; was then the most important state in the union and bid fair to hold her position; but when the Erie canal was built and the boom of the signaling cannon announced from Buffalo to New York that the waters of the great lakes and of the Atlantic ocean had been united by a highway for traffic through our state, they sounded the first boom which predicted our prosperity and progress; for by the aid of the Erie canal, built and improved by loyal citizens of New York state, we gained the proud position we now hold, and it is only by bringing this grand factor of our growth and greatness up to the requirements of the present day that we as a state can maintain and increase our importance; and we do not have to ask any other state to allow us or help us to do it."



Steel Shaft House, Sibley Iron Mine, Vermillion Range, Minnesota.

The annual report of Capt. William L. Sibert, United States engineer in charge of the Monongahela, Allegheny and upper Ohio rivers, with headquarters at Pittsburg, shows an increase in the tonnage of freight on the Monongahela river for the last year of more than 2,000,000 tons. This freight consisted largely of coal, iron and steel, and is an indication of the growth of the valley bordering on this river in the past year. Miles of coal properties have been developed and hundreds of acres are now in course of development. Furthermore the steel mills along the river are increasing their river shipments south, both on account of the low tariffs and the favorable shipments made when there is a high water stage. The aggregate tonnage on the Monongahela shows a development of 11,369,814 tons for the fiscal year ending June, 1903, as against 4,162,644 tons for the fiscal year ending June, 1893. The growth during the decade has been steady, but has been especially rapid during the past three years.

The battleship Nebraska, building at Moran Bros. Co., Seattle, Wash., will be launched in about a year. Twelve hundred men are at work on her.

The Cunard Line has decided to enter the Mediterranean service and will operate the Carpathia and Urania between Boston and Naples.

EXTRAORDINARY TRIAL OF BELLEVILLE BOILERS.

Recent performances of the Spartiate and Europa, British cruisers, under a lengthened competitive trial, as nearly as possible with war conditions, have proved a veritable triumph for the Belleville boiler, with which both vessels are fitted. At any rate the record made by the Spartiate on her 20,000-mile trip has strongly confirmed the general opinion that water-tube boilers, when properly handled and made, are the coming boilers for cruiser work. It is curious that the Europa, on the one hand, should have been largely responsible, by former disastrous voyages, for the condemnation of the Belleville boiler, and now has been largely instrumental in rehabilitating the credit of that boiler. Of course, she has been largely refitted, but she was thought so little of that the boiler committee pronounced her incapable of making a voyage to China and back, and practically washed their hands of her. The controller of the navy, however, supported by the opinion of some other experts, determined to carry out the trial, with, as it turns out, excellent results in the case of both vessels.

The idea of the test was as follows: War suddenly breaks out, and certain cruisers already in commission are suddenly called upon, without any lengthened preparation or repairs, to set off on a cruise of 10,000 miles, including chasing an enemy, if found; touching in harbor only to coal. This is obviously a most excellent, if a searching, test, and approaches as nearly as possible to sudden war conditions. As the boilers in these vessels were already condemned as a type for the British navy a breakdown was, of course, expected. As a matter of fact the cruise being determined to China, the vessels were used as transports, entailing a change of crews for the home voyage. In spite, however, of the anticipations as to their failure, and the above extra risk on handling, the vessels returned triumphantly home from their cruise to Hong Kong without a breakdown and with little or no defects visible in their boilers. On the voyage out, which was done at economical speeds, the Spartiate effected the voyage at an average of 13 knots with a consumption of 2,600 tons of coal. This is a record in naval annals for any class of boilers or engines amongst cruisers. The Europa's average was 10.75 knots with a consumption of 3,600 tons of coal. Both ships easily made all the fresh water they required by their condensers, a most important point; and though the Spartiate had some trouble with a hot bearing in the crank-head, the condemned Europa had no trouble at all, either with boilers or engines. The voyage home was at much higher speeds with, of course, corresponding increase of consumption of coal, but this included tests at high chasing speeds against what was very indifferent weather.

Concerning this trip, the Engineer of London, which has never been especially favorable to the Belleville boiler, publishes the following from its correspondent:

"That these trials have rehabilitated the Belleville boiler is roundly asserted by that by no means inconsiderable party amongst the naval engineers which professes itself perfectly satisfied with the condemned boiler. These two Belleville cruisers, they point out, 'have each made a 20,000-mile trip, the second half of which was done under trying war conditions in the tropics and against adverse weather.' The ships are now lying in Portsmouth harbor with no defect worth mentioning. No other boilers have done anything like this."

"There is no getting away from this fact. Other types may do it, but none so far have been so tested. Indeed, till this trial was made, no real 'war tests' have been attempted. The boiler committee's exhaustive trials have been rather of a scientific nature than a rough-and-ready war test; and it is not impossible that now and again the scientific aspect of the question has come unduly to the fore. This has perhaps been most evident in the matter of water consumption; but of this later."

"The Spartiate and Europa are usually spoken of as sister ships. This is incorrect, for the Europa is an earlier and inferior example of the Diadem class, to which both vessels nominally belong. Her designed horse power is 16,500 and 20.25 knots her speed, against 18,000 H. P. and 20.75 knots in the Spartiate. The Spartiate has Bellevilles of the usual type; the Europa boilers are identical almost with those of the Powerful and Terrible, though economisers were added as an afterthought. She was engined by Clydebank; the Spartiate has Maudslay engines. These last are particularly liked in the British navy, especially in Belleville ships, though in the case of the Spartiate endless trouble was some while ago experienced in the engine-room before she could get through her trials. Her boilers, it should, however, be noted, never gave any trouble. She was reported in the daily press as having been re-tubed, but this we find is incorrect. It was the condensers that were 'doctored'—to use the phrase that Sir William Allan has recently made classic in another direction."

"The Europa is—or was—the ship at which Sir William Allan used to launch his special thunderbolts. According to Sir William, she was known in the navy as 'H.M.S. Hell,' on account of the tremendous heat below. The present Europa, however, is hardly the same ship in many ways, for her boilers were almost entirely re-tubed after that famous voyage which, more than any other, led to the doom of Bellevilles. It is certainly the irony of fate that this very vessel should now have done so much to revoke that doom! But a still more extraordinary fact is behind it. The Europa, after her refit, was examined by the boiler committee, and pronounced incapable of making the voyage to China and back. A special committee, however, gave a somewhat different verdict, and so the ship got sent. It can hardly be said, however, that many expected to see her return—except in tow. In the betting on the event—for there were innumerable bets exchanged—it was

two to one against the Spartiate, it averaged ten to one against the Europa. The boiler committee appears to have washed its hands of the affair altogether—the program having been arranged by the controller of the navy, Admiral W. H. May. The general idea was as follows: 'The two ships have been in commission for some little while. War suddenly breaks out, and before any repairs can be effected, they are in active service, cruising and chasing. Can they in those conditions steam 10,000 miles, touching harbor only to coal?' Of the excellence and wisdom of such a test there can be no question; and, the type of boiler having already been condemned as 'unsuitable for the British navy,' the chances of breakdowns could be cheerfully faced. The general idea was not, however, exactly followed, for, economy supervening, the ships were used as transports, and shipped fresh crews at Hong Kong, which was manifestly a handicap to some extent. Otherwise the scheme was carried through."

"The first part was accounted for by the voyage out. This the Spartiate did at an average of 13 knots, burning 2,600 tons of coal. The Europa did her 10,000 miles at a mean of 10.75 knots, and burned 3,600 tons. The best cylindrical record is that of the Blenheim—4,000 tons, and this used to be regarded as very good."

"The following are the details of the engine-room complements for the voyage out. In the Spartiate the chief engineer, Lieut. Gaudin, is, of course, the most experienced Belleville officer in the service. His reputation to a great extent was at stake. The senior engineer was also fairly experienced in Bellevilles; three engineer sub-lieutenants had had some Belleville training; another had never seen them before. Neither had the three artificer engineers. Of the E.R.A.'s, four were experienced, half the remainder entered as knowing something about them, the other half were absolutely raw to water-tube boilers. Seventy-five per cent. of the chief stokers were experienced men, and half the stokers slightly experienced. The other half were raw hands to stoking of any sort."

"In the Europa the chief had had two years' experience in the Hyacinth, the senior engineer had done six months in the Arragant, and the navy lists show one A.E. with a year in the Andromeda—a successful Belleville ship. One artificer engineer, two chief stokers, and 20 per cent. of the stokers were experienced. All the E.R.A.'s had little, if any, Belleville training; 20 per cent. of the chief stokers had some little experience. Twenty-five per cent. of the stokers were the raw second-class variety. All told, therefore, she was a pretty raw ship. At Hong Kong the Spartiate kept forty stokers, three chief stokers, and five E.R.A.'s. These, with six leading stokers, were permanent staff. About 80 per cent. of the new men came from the Ocean, and so had three years' experience. The Europa took the leavings of the Ocean—thirty stokers—and drew the rest of her men from the small ships of the station, including men from the Rosario. She got no experienced petty officers at all, and again had an indifferent lot of ratings in the matter of training."

"The ships left at once for home. Both did the same program, except that the Spartiate had to abandon one trial on account of a hot bearing in the crank head. Speed was continually changed. The special runs included three 8-hour full power runs, a 54-hour three-fifths power—which averaged 18 knots—a 32-hour at the same, and a four-fifths from Gibraltar to Devonport, against a head wind, force 6—7. In this the Spartiate logged 18 knots and the Europa 17.6. Each had about .5 knot better 'engine speed'—the weather cut them down."

"The average coal consumption in the Europa was 1.91, which is close to the fancy trial records. Though the cruise was mostly in the tropics, no single stoker fainted on 20,000 miles in either ship. Six deck hands fainted in the Europa's bunkers, but soon came round. None fainted in the Spartiate."

"At high speeds about a hundred deck hands went below to the bunkers. The Spartiate consumed 6 tons of water per 1,000 L. H. P. per 24 hours—the Europa about 5½ tons. Both ships easily made all the water that they required—a point of far more importance than the figure the consumption stands at. In the Europa one condenser leaked for a little while. The Spartiate had the hot bearing already mentioned, and one or two leaky joints, but she is without a single defect of consequence. The Europa had no trouble with either engines or boilers, and has no defects at all."

"The total coal consumption for all purposes during the 100,000-mile return journey were: Spartiate, 4,500 tons; Europa, 5,600 tons."

"It will be noted that the Spartiate's consumption is the better of the two, both on the easy voyage out and the hard one home. This, however, is in keeping with the first trials, on which the Spartiate was 25 per cent. better than the Europa. On this trip her superiority was 19 per cent. only, so the Europa did somewhat better with her own crew than in the contractors' trials, which few ever look to see repeated."

Orders have been issued by the navy department for a thorough test of the Niclausse boilers of the battleship Maine. It is likely that the Maine will be ready for the test sometime in September. It is the intention to send her on a long cruise under the direction of a special board of engineers.

The bulk of the foreign carrying trade of the Philippines continues under the British flag, upwards of 75 per cent. of the exports and 60 per cent. of the imports, including practically the whole of the trade of the United States, being carried in British ships.

SEEN AND HEARD ON THE LOOKOUT.

The Tarantula, a turbine pleasure vessel, recently finished a rough voyage from London. Being towed by a British tramp steamer to the latitude of Bermuda the precaution was taken to encircle the vessel with a steel cable, with a bridle forward, to which the 125-fathom manila hawser was attached so as to distribute the strain and bring the purchase as much as possible on the entire hull. This brings to mind the story of a Dutch captain's experience in the North sea. A small Dutch bark, ancient, bluff-bowed, and far from weatherly, had been compelled to anchor under Heligoland to await the pleasure of that which is said to wait for no man—wind and tide. The steadily increasing wind necessitated an increase in the number of fathoms of chain paid out from the bark's locker, so that by the time it blew a hurricane only the bare end remained on the windlass. Not deeming it wise to drop the second anchor so far from its mate, the cable of the latter was shackled onto the one already in use and paid out until only enough remained on board to reach along the deck and around the cabin to the after bitts. Four parts of a cayar rope—famed for its elasticity—having been made fast to the cable forward of the windlass and stretched the entire length of the deck, each plunge occasioned by the rapidly-increasing sea was first felt by the elastic rope and then gradually passed over to the more solid endurance of the anchor chain. The flood tide bringing with it a fair wind, the captain was anxious to leave the inhospitable Heligoland coast without waiting for the sea to go down. Owning the vessel and having her fully insured, he ran excitedly forward, shouting: "Het anker krabt!"—the anchor drags. Could the crew have been persuaded that the wish of their anchor's dragging was not father to their captain's thought, by simply slipping the remnant of chain that still remained on board and afterwards swearing before the board of inquiry that to save ship and cargo such a proceeding was made imperative, the insurance company would replace the lost anchor and 125 fathoms of chain. While not anxious to heave in so many fathoms of cable, the crew fully understood the delicate situation, and it was only when each inhabitant of the fore-castle was given 10 gulden (\$4) that they realized the truth of the captain's previous assertion "het anker krabt." Incidentally it may be mentioned that the bark arrived safely in Hamburg; that a generous insurance company speedily replaced the so-unfortunately-lost anchor and chain and that the latter was subsequently recovered by Heligoland fishermen. But the Holland skipper could never be induced to say of the termination of this trip that "all's well that ends well," for did not the reporters of the Hamburg papers refer to his vessel as a "kof?" Only Dutch sailors can understand the captain's disgust at having his boat mistaken for a "kof"—a cross between a raft and a bath tub.

As is the case with everybody's business which is said to be nobody's, so something easy, and of which it is said that anybody can do it, hardly anyone does correctly. The generous supply of small gasoline launches to be seen, heard and smelled in every creek and cove along the shore has resulted in an urgent demand for engineers. Does the supply of launches exceed the available supply of engineers? Not at all; for anybody can run a gasoline engine, and a license is not required. The following is a truthful account of a yacht owner's experience, and one of the reasons of my belief that your readers will accept it as such is because it appears stranger than fiction. A gentleman who for years had owned a sloop sold his craft last winter and bought a small gasoline launch equipped with a 14 H. P. motor of the explosive type, four-cylindrical and reversible. Being kindly disposed toward the Swedish sailor who for several seasons had assisted him in the handling of his sloop, the gentleman in question conceived the philanthropic idea of converting this sailor into an engineer by paying his winter's board and arranging with a motor concern to permit the man to pass his time in its establishment. The advent of spring brought our Swede to his employer's office with a request of 25 per cent. increase of his former wages, on account of his proficiency as an engineer. Suffice it to add that this efficient engineer is now sailing a catboat for a lady who conducts a summer hotel on the Jersey coast, while a Norwegian sailor, to whom it was necessary to explain that a lighted match dropped into the gasoline tank would speed him to kingdom come, is successfully running the launch. As might have been expected a few cases of gasoline explosions have been reported, but taking into account the number of launches that have so suddenly made their appearance, and the consequent haste in which engineers had to be made, that not more accidents have happened testifies to the adaptability of the American yachtsman and the reliability of the motor. The different types of motor are legion, and as the blame for an accident to the product of his establishment is in most cases laid at the door of the maker, the latter is naturally anxious to be assured of the efficiency of the man in charge. It is for this reason that an expert from the motor's place of birth accompanies the new owner on his maiden trip and incidentally instructs the often-nonplussed hired man in the mysteries of his new vocation. The beautifully-illustrated catalogues, minutely describing the only manner in which the motor in question ought to be handled should enable the least-mechanically-inclined yacht enthusiast to become a capable knight of the reversing gear.

In time of peace prepare for war; and during the summer months select appropriate winter quarters for your yachts. These among yacht owners who can devote themselves to pleasure re-

gardless of expense—though it sometimes may appear to us poorer mortals as if they were devoting themselves to expense regardless of pleasure—have regular winter homes for their palatial craft, and it was the humble owner of the sloop or gasoline launch, who, desirous of securing shelter for his boat at the end of the yachting season, had to haul her up on some desolate beach, far from the madding crowd, on account of his inability to pay the exorbitant demands of dock owners. Nothing is constant but change, and the so-urgent demand from owners of the especially this-year-so-numerous small craft for inexpensive winter quarters has now been supplied. As is the case with boarding house keepers in lake ports, who make it their specialty to provide sailors with board and lodging when navigation is suspended, so in most of the harbors of the eastern coast enterprising individuals have seen the advantage of going into the wholesale yacht sheltering business. A short while ago I met the owner of a small ship yard—and small not only refers to the yard but also to the craft, dories and row boats exclusively, that are there built and repaired. Of course your readers understand that whatever the "Lockout" sees and hears is not intended as a puff or an advertisement, and it is for that reason that this humble boat builder's name and place of business are not mentioned. The gentleman in question having on several occasions this summer been asked by owners of small boats to show them a safe and at the same time inexpensive place of rest for their floating property, conceived the idea of furnishing the required lodging; and incidentally it may be mentioned that the rumor of his reasonable demands has already resulted in applications for space that shall seriously tax the capacity of his yard. Anything in the shape of a yacht under 30 ft. over all can find a winter home here for \$15. For \$5 additional a boat will be hauled up under a shed, while the owner has the use of a locker in which to store some of the small gear, such as rowlocks, sidelights, compass, etc. A large room in one of the buildings, already suggestive of frost and snow on account of the enormous box stove that takes the most conspicuous place, is set apart for the use of yachtsmen who wish to visit their boats during the cold season, or to enjoy the ecstasies of mutual confidence as regards the valorous deeds done when aloft. Not agreeing with Darwin that we are evolved from monkeys, and for that reason imitative, I am of the opinion that a dread of conspicuousness makes us do as our neighbors. Yachting has been called the most expensive of luxuries, but, should the number of yacht owners continue to steadily increase as of late a fear to be considered out of style, and the sensitive person's dread of the aforementioned conspicuousness may result in yacht-ownership becoming a necessity.

PHILIPPINES CARRYING TRADE.

Editor Marine Review:—The carrying trade of the Philippine islands for the nine months ended March 31, 1903, consisted of: Imports, \$26,237,411; exports, \$27,150,589; total, \$53,394,000. Of this only \$707,202 was carried in American vessels. On the remaining \$52,686,798, or about 98½ per cent., we paid tribute in freights to foreign ships, distributed as follows: British, \$31,052,767; German, \$7,410,920; Spanish, \$7,438,492; Norwegian, \$2,890,720; French, \$687,736; Belgian, \$88,731; all others, \$3,192,200.

We cannot expect, even when we own an ocean merchant marine worthy of the name, to do all the carrying trade in our own ships, but it is particularly aggravating that 98½ per cent. of the shipments to and from ports of the United States should be carried in vessels flying foreign flags. This aggravation affected us in this nine months on: Imports from United States, \$3,158,487; exports to United States, \$9,236,090; total, \$12,394,550. On \$12,208,039 of this total we put our hands in our pockets and made foreign ship owners a present of the freights. If this kind of thing goes on much longer we shall have bought a good many ships for foreigners to own.

WALTER J. BALLARD.

Schenectady, N. Y., Aug. 8, 1903.

NEWPORT NEWS NOTES.

Newport News, Va., Aug. 19.—The armored cruiser Maryland will be launched at the ship yard Saturday, Sept. 12. The sponsor has not been announced by the navy department. The Maryland is a sister of the West Virginia, which was launched here April 18. It is expected that there will be 40,000 or 50,000 people here at the launching.

The work of dredging Newport News middleground bar to a depth of 30 ft. at low water is now under way. The work will cost \$250,000 and will take until 1905 to complete. The bar has been a drawback to the shipping of the port for some years.

The German cruiser Vineta is expected to return to the ship yard next month in order to have some repairs made. This will be her third visit to Newport News.

The American Line steamship St. Louis has sailed for New York after being cleaned and painted in dry dock.

The Lucretia, first gasoline-propelled freight barge of the Atlantic Power Barge Co. of Baltimore, has been launched from the ship yard of E. J. Tuill, Pocomoke City, Md., and it is expected she will be ready for service about the middle of August. The barge was designed by Messrs. Simm & Page of Baltimore. She is 168 ft. over all, 160 ft. between perpendiculars, 23 ft. beam and 12 ft. deep. She is intended to carry freight on inland waters and has capacity of 800 tons.

bands are being placed in preparation for the erection of the frames of the passenger boat for the Fall River Line and the keel has been made ready.

Notable progress is evident on the three freight car floats building for the New York, New Haven & Hartford Railroad. Four floats were included in the contract but the building beach is so filled with hulls in process of construction that there was barely room for the three now under way. Hull No. 116, as the first of them is called officially, is plated on the bottom amidships and above the turn of the bilges and the frames and trusses of this part are in place. Hull No. 117 is more advanced, the sides amidships being almost complete and nine bulkheads having been erected. Hull No. 118 has only a part of the bottom laid.

SALES OF PNEUMATIC RIVETING MACHINES.

John F. Allen, 370-372 Gerard avenue, New York city, manufacturer of the Allen portable pneumatic riveting machines, reports the following sales of complete machines for the month of July: To American Structural Steel Co., East Carnegie, Pa., three machines; one machine each to Handels-und Transport Actiengeschaft of Vienna, Austria, Locomotive & Machine Co. of Montreal, V. Lowener of Copenhagen, Denmark, Baird Machinery Co., of Pittsburg, Pettibone, Mulliken & Co. of Chicago, J. A. Mead Mfg. Co. of Grand Crossing, Ill., G. L. Bollinger Co. of Verona, Pa., Barber & Ross of Washington, D. C., Noelke & Richards Iron Works of Indianapolis, Ind., Kellogg Iron Works of Buffalo, American Hoist & Derrick Co. of St. Paul and Ratig Engineering Co. of No. Sidney, Nova Scotia; a total of fifteen machines.

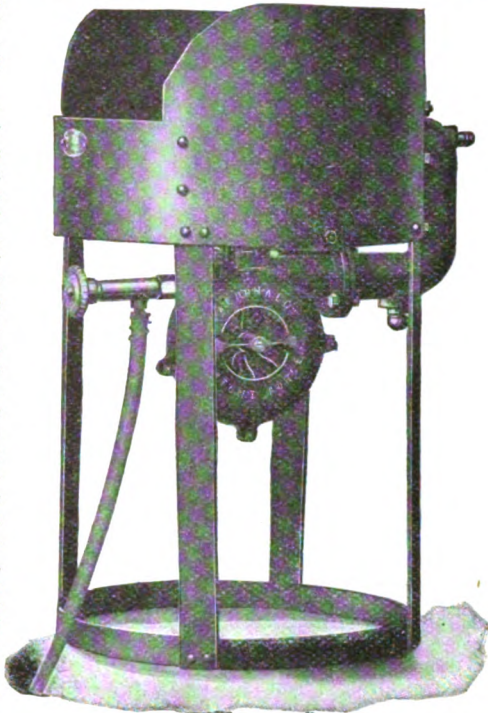
Mr. Allen says: "At the end of our third quarter, July 31, our sales show an increase of 36 per cent. over the corresponding period last year, and our July sales were 10 per cent. more than sales in May or June."

Marine Engineering, No. 309 Broadway, New York, has recently published some very valuable detail drawings of marine machinery in four sheets which fold in a neatly-bound pocketbook for mailing. No. 1 contains detailed working drawings of a four-furnace, single-end Scotch boiler; No. 2, diagrammatic pipe and auxiliary plan, showing the piping plan of a triple-expansion engine and all of the auxiliaries which would be used in connection with such an engine; No. 3, complete detail working drawings of a typical triple-expansion engine of 1,250 H. P., with a key naming and describing each part of the engine; No. 4, the necessary text to explain the accompanying drawings. The drawings may be had of the Marine Review Pub. Co. for \$1.

CHICAGO AIR FORGE.

Officials of the Chicago Pneumatic Tool Co., Fisher building, Chicago, claim that they have in the Chicago air forge one of the most practical machines ever put on the market. They say of it:

This forge differs from other forges which we manufacture in that the others require oil for fuel while this one is an air blast forge for coal or coke. The hose connection through which the air enters the forge is 1/4 in. standard pipe connection, and the air passing through a sixteenth needle valve jet forces the fan to revolve rapidly, and as the fan is open to the outer air a blast of free air is continually blown through the tuyere. This method of using air to operate the fan, in addition to giving excellent results, effects a considerable saving in the amount of air consumption. This machine uses either coal or coke, coke possibly giving the best results. It operates with an air pressure of from 60 to 100 lbs. and consumes approximately from 5 to 7 cu. ft. of free air per minute. The fan revolves at approximately 4,000 revolutions per minute at 80 lbs. pressure. It is 3 in. high over all, and the pan, or fire box, is 20 in. in diameter by 10 in. deep. The forge weighs 114 lbs. complete.



The schooner Benjamin Harrison will be sold by the United States marshal at Tonawanda Saturday.

BELLEVILLE WATER-TUBE BOILERS

NOW IN USE (FEBRUARY, 1903)

On Board Sea-going Vessels, NOT INCLUDING New Installations Building or Erecting.

French Navy	-	-	-	-	-	-	-	276,460 H. P.
English Royal Navy	-	-	-	-	-	-	-	849,300 "
Russian Imperial Navy	-	-	-	-	-	-	-	1,390,000 "
Japanese Imperial Navy	-	-	-	-	-	-	-	122,700 "
Austrian Imperial Navy	-	-	-	-	-	-	-	32,900 "
Italian Royal Navy	-	-	-	-	-	-	-	13,500 "
Chilian Navy	-	-	-	-	-	-	-	26,500 "
Argentine Navy	-	-	-	-	-	-	-	13,000 "
The "Messageries Maritimes" Company	-	-	-	-	-	-	-	87,600 "
Chemins de fer de l'Ouest: (The French Western Railway Co.)	-	-	-	-	-	-	-	18,500 "
plying between Dieppe and Newhaven	-	-	-	-	-	-	-	
Total Horse Power of Boilers in Use	-	-	-	-	-	-	-	1,634,360

DELAUNAY BELLEVILLE CO.—Incorporated

CAPITAL: 6,000,000 FRANCS

Works and Dock Yards at Saint-Denis (Seine), France. Telegraphic Address: Belleville, Saint-Denis-Sur-Seine

GREAT KRUPP WORKS.

The Essen Chamber of Commerce a few days ago issued a report dealing with the present condition of the famous Krupp works which became a joint stock company on June 30. At the present time the establishments owned by the company comprise the steel works at Essen with a firing ground at Meppen; the Krupp Steel Works, formerly F. Asthower & Co. at Annen in Westphalia; the Gruson Works at Buchau, near Magdeburg; the German Ship Building Yard at Kiel; four blast furnaces near Duisburg, Neuwied, Engers and Rheinhausen. The works at Rheinhausen comprise eight blast furnaces, the production of which, according to the nature of the iron treated, amounts in twenty-four hours to 180 to 230 tons per furnace; a smelting works near Sayn with machine works and iron foundry; three coal mines, those of Hanover, Hannibal, Salzer and Nauack; and a large number of iron ore mines in Germany, including ten deep-level mines fitted with a complete machine equipment. Moreover the firm of Fried. Krupp has a share in iron ore mines near Bilbao in Northern Spain and it is interested also in a steamship company at Rotterdam.

The principal productions of the steel works at Essen are big guns—of which 30,876 had been turned out up to Jan. 1, 1902—projectiles, fuses, gun-barrels, armor plates in rolled plates and armor plates for all the protected portions of warships and also for use in fortifications, railway material, ship building material, machine parts of every kind, steel and iron plates, cylinders, steel for making tools, hard steel, special steel, steel bars, and the like. In the sixty departments of the cast steel works in activity in 1901, there were in use about 5,300 machine tools and engines, twenty-two rolling machines, 141 steam hammers of 100 to 50,000 kilos, and of a total power of 242,775 kilos., sixty-three hydraulic presses, including two bending presses of 7,000 tons and one forging press of 2,000 tons power; 323 vertical boilers; 513 steam engines varying from 2 to 3,500 H. P., and of a total of 43,848 H. P.; 360 electric motors, and 501 cranes, varying in their carrying capacity from 400 to 150,000 kilos., and of a total carrying capacity of 6,327,600 kilos.

During 1902 the total daily average of iron ore taken from the Krupp iron mines amounted to about 1,782 tons, and the total amount of coal raised in 1902 was 1,043,576 tons. The total consumption of fuel by the Krupp works, so far as they were supplied by the steel works, amounted in 1902 to 843,404 tons of coal, of which 659,121 tons were used by the steel works alone, to 360,201 tons of coke, and to 6,630 tons of briquettes. Reckoning the coke and briquettes as coal, the total consumption of fuel by the Krupp works, supplied by Essen, was 1,367,005 tons.

The yearly consumption of water is nearly equal to the amount consumed in Cologne. A newly-built waterworks was taken over early this year, and it will be able to supply soon 10,800 cubic meters of water daily. The gas works at Essen supplied in 1902 18,643,500 cubic meters of lighting gas for 2,535 street lamps; in 1902 the consumption of gas by the town of Düsseldorf amounted to 18,358,200 cubic meters; while that of Breslau was 22,045,500 cubic meters. Moreover, 40,553 gas lights were used in the work-shops, offices, workmen's houses, and for technical purposes, etc. By virtue of its production the gas works of the Krupp steel works ranks ninth among the gas works of the German empire.

The electricity department at Essen comprises three engine houses with seven departmental stations. Thirty-nine kiloms. of underground cables and 42 kiloms. of cable above ground feed 1,325 arc lamps, 10,580 incandescent lamps and 434 electro-motors. The electricity supplied in 1902 amounted to 7,004,039 kilowatt-hours; in 1901 the supply of kilowatt-hours of electricity to Frankfurt-on-Main was 13,000,000, and 3,792,052 in the case of Düsseldorf.

For purposes of internal communication and also with the outside world the Essen steel works are served, in addition to other means, by a normal-gauge railway system in direct communication with the three stations of the state railway at Essen, the Essen railway station, Essen-Nord and Bergeborbeck; at this moment communication between the steel works and these three railway stations is kept up by about fifty trains a day. The normal-gauge railway has a track of about 65 kiloms. in length, sixteen tender locomotives and 714 cars; moreover, there is a small-gauge railway system with a track of about 48 kiloms. in length, twenty-seven locomotives, and 1,209 cars.

The telegraph system in the works at Essen has thirty-one stations. During 1902 the telegraphic intercourse between the imperial telegraphic office at Essen and the works amounted to 22,585 messages received and despatched. The telephone system has 309 stations with 407 telephones, and 375 kiloms. of line.

The firing ground at Meppen is 25 kiloms. long and 4 kiloms. in width. In 1902 there were carried out at this ground 1,002 trials of guns. At the range in the steel works itself there were fired in 1902 in round numbers 13,000 shots, partly for purposes of experiment and partly for testing guns which were ready for delivery. At both ranges 25,200 shots were fired in 1902, and there were used 56,000 kilos. of smokeless powder and 421,000 kilos. of projectiles.

The total amount of money contributed by the Krupp firm in 1901 in the shape of insurance, aids to saving, and relief of the sick and needy was 3,095,704 marks, or \$743,432.25.

According to the census of April 1, 1903, the total number of persons employed in the Krupp works amounted to 41,013, of whom 4,046 were officials. This number was distributed as follows: At Essen, 22,970; in the Gruson works near Buchau, 2,651;

in the Germania Ship Building Yard at Kiel, 3,062; in the coal mines, 6,620; and at the iron mines and at Meppen, etc., 5,710. From time to time a census of all the families connected with the various Krupp works is taken. The census taken from May 14 to May 19, 1900, showed that the total number of employees, with their wives and children, amounted then to 147,645 persons. The average daily wage per head in 1900 was M.4 52 pf., or \$1.12½; in 1890 the average rate of wage was M.4 63 pf., or \$1.14½. A detailed review of the rise in wages since 1853 is followed by an interesting statement concerning the average selling price of the most important articles of food in the Krupp works from 1890 to 1902. A comparison of both reviews shows that while the daily rate of wage rose continually until 1900, the price of food increased only slightly, and that for the most part the prices remained stationary, or even fell. After the experience of the last twenty years, it is pointed out that the reduction which has taken place in wages since 1900 may soon be made good if a favorable opportunity presents itself. Seeing that the Krupp firm is now the largest industrial undertaking in Germany, the German press expresses the hope that the management will not limit itself only to general matters in its future reports, but that it will, far as its business interests may permit, go into details.

AN ENGLISH BULL.

The fact that Mr. J. Pierpont Morgan's name does not appear among the signatures to the agreement between the British government and the International Mercantile Marine Co. causes a London correspondent to write the following:

"The modesty of J. Pierpont Morgan is unenviable. The agreement in question winds up with a magnificent display of some twelve or fourteen signatures, and names every one who is anyone in the great trust. Nowhere is the name of J. Pierpont Morgan. The hand is the hand of Bruce Ismay, Henry Willing, David Richards and Charles F. Torrey, but the voice is—dash the voice—we know without the obvious signature."

A distinguished surgeon in Trinity college, Dublin, in describing the smallness of microbes to his students, said: "You can put a handful of them on the point of a needle." But this latest bull does not appear in an Irish paper, but in the Manchester Guardian.

Turbine-driven vessels seem to be quite the rage. The Belgian government has decided to have one for the Dover-Ostend service. She is to do the trip in 2 hours and 22 minutes. Of the four fast steamers that the Midland railway has lately ordered for its Belfast service two are to be fitted with Parsons turbines. They are intended to be safe, comfortable and fast. They will be 330 ft. long, 42 ft. beam and 17½ ft. deep. Denny & Bros., Dumbarton, will build one and Vickers Sons & Maxam will build the other. Of course the Parsons Steam Turbine Co. will supply the engines.

With the exception of building four warships for the Swedish government and a few steamers and sailing vessels—none of any size—the work of the ship building yards of the Gothenburg district was chiefly limited during 1902 to repairs.

Proposals for Marine Postal Service

Sealed proposals will be received at the Post Office at Detroit, Michigan, until 12.00 o'clock noon, September 10th, 1903, for the service of a steamboat and crew, fully equipped and manned, for the Marine Postal Delivery Service on the Detroit River, for a period of ten years. Full specifications may be seen upon application to the Postmaster at Detroit, Michigan. Bids must be accompanied by certified check for \$1,000. Right to reject any and all proposals is reserved. Address: JAS. J. LARMOUR, Post Office Inspector, "Proposals for Marine Service," Detroit, Mich. 9-3

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REVIVAL OF AMERICAN MERCHANT MARINE.

An impressive campaign is being made by the New York Board of Trade & Transportation for the rehabilitation of the American merchant marine. Vigorous measures, indeed, will have to be taken if American ships are to be restored to the seas. The trade routes of Great Britain are well established; she has stoutly entrenched herself since the civil war, and under natural conditions she will continue to maintain her supremacy. What is needed by the American merchant marine is governmental aid until it develops strength. At present for American ships to battle against Britain is for a child to fight a giant. The infant must grow before he can fight. Once the handicap is overcome undoubtedly the ships of the United States can take care of themselves. Every effort should therefore be lent to the campaign projected by the New York Board of Trade and Transportation. Concerning the present condition of the American merchant marine the following facts are set forth by that organization:

"It is a fact that the United States of 1810, with 7,000,000 inhabitants, owned more registered tonnage for over-sea trade than the United States of 1903, with a population of 80,000,000. This tonnage in 1810 was 981,000; it is now 873,000, and, worse still, it showed an actual decrease of 6,000 tons from the year before. In 1810 American ships and American sailors carried 91.5 per cent. of their country's ocean trade, and, moreover, a great share of that of Europe. In 1861, though we had already lost our Atlantic steam lines and our ship building was falling off, we still carried 65.2 per cent. of our own trade and some of the trade of other nations.

"American ships last year conveyed only 8.8 per cent. of our imports and exports. Our registered tonnage in 1861 stood at 2,496,000. It stands now at 873,000. Two-thirds of our once great and powerful deep-sea fleet has vanished—and not one new keel for a deep-sea ship is being laid on either our Atlantic or Pacific coastline. Meanwhile an ever increasing fleet of foreign vessels throngs our ports and monopolizes the carrying of more than nine-tenths of our import and export commerce. The United States pays to these foreign vessels for conveying our freights and passengers upwards of \$100,000,000 a year. Much of this vast sum of money goes to steamers which are regularly enrolled on the 'merchant cruiser' list of European governments, which are manned by naval reserve officers and sailors, and are available for service against us in war. The British empire has 14,800,000 tons of merchant shipping; Germany, 2,960,000 tons; France, 1,480,000 tons; Norway, 1,660,000 tons; Italy, 1,180,000 tons. By far the larger part of all these fleets is engaged in ocean carrying. But the United States of America, which produces far more merchandise and now sends more abroad than any other nation, has a fleet registered for deep-sea commerce of only 873,000 tons.

"American commerce, the labor in the mines, the forests, the shops and in the ship yards are interested in this question, and American farmers, whose products supply two-thirds of the value, and a much larger portion of the bulk, of our exports, are equally concerned with all other Americans in whatever will contribute to the employment of American ships, their active and sustained competition with foreign ships, and the inevitable reduction in freight rates sure to follow such increased competition.

"The New York Board of Trade & Transportation invites you to give the facts herein set forth your earnest consideration. It is of the highest importance that American ship building and ship owning for ocean commerce must be revived. This is not a political question; it is not a party question. It is a business question, pure and simple, and a full, frank, good-tempered discussion of it ought to bring the whole country into harmonious support of some plan which will be practicable and effective.

"Friends of free ships, subsidies, discriminating duties and every other policy that has been suggested are cordially urged to present their views and arguments. The system which best stands the test of free debate is the system which is most worthy of adoption. But on one vital point all must be agreed beforehand, and that is that something must be done and done quickly, if we are to save the remnant of our ocean-carrying trade and

redeem our ship yards. The deplorable condition of the ship-owning and ship building industries is in itself conclusive proof that a vigorous remedy is needed."

TRADE NOTES.

The Philadelphia branch of the Chicago Pneumatic Tool Co. has secured a substantial contract for pneumatic riveters and hammers for the Chilean navy yards.

The Delaware Marine Supply Manufacturing Co., Wilmington, Del., will soon erect an additional building to its present plant and materially enlarge its facilities.

At the shops and factory of A. W. France, Tacony, Philadelphia, two shifts of employees are now working in order that the demand for France metallic packing may be met. The company is now making fibrous packing.

The Universal Safety Tread Co., 45 Broadway, New York, has just put out an illustrated catalogue. This tread has been before the public a little over two years and the manufacturers claim for it that it is safe at all times—safe when partly worn out, safe until the base plate is entirely worn through. The company has installed this tread upon the following warships: Battleships Maine and Ohio; cruisers Tacoma, Prairie, Yankee and Raleigh; monitor Wyoming; gunboat Machias; revenue cutters Manning and Thetis.

QUARTER-POUND SAMPLE OF GRAPHITE.

Readers of the Review who are interested in the matter of economic lubrication should take advantage of the offer which the United States Graphite Co., sole miners of Mexican graphite, make through their advertisement, elsewhere in this issue. They solicit an opportunity to put a quarter-pound sample of their No. 205 lubricating graphite in the hands of all interested engineers. They certainly take a very practical way of backing up the claim that theirs is the most efficient article of its kind. No. 205 lubricating graphite is offered as admirably adapted to all classes of lubrication, whether used dry or in connection with water, oil or grease. Aside from its lubricating qualities this dry graphite mixed to proper consistency with boiled linseed oil is said to make the very best preservative paint for stacks, boiler fronts and exposed ironwork generally.

By the completion of the Ofoten railway—formally opened to traffic a few days ago by King Oscar of Sweden—the enormous North Scandinavian iron ore deposits are brought within reach of the sea coast. The railway runs mostly within the Arctic circle and is the northernmost railway in the world. The quantity of ore brought down over this line for shipment will be large for many years to come. Already more than 16,000,000 tons have been sold for delivery from Gellivare and Kiruna between the years 1902 and 1912, of which quantity the greater portion will be shipped at Narvik, and about one-third from Lulea, to be landed at Emden, Rotterdam, Amsterdam and Stettin on account of German companies, and at Dunkirk, Swansea, Grangemouth, Newcastle and Middleborough on account of British companies. The bulk of this ore carrying business has been secured by the Hamburg American Packet Co. In conjunction with mines already in operation it is expected that 4,000,000 tons per annum will be shipped from the northern provinces of Norway and Sweden.

The British admiralty is spending \$100,000 a year on wireless telegraphy, the major portion of which goes to the Marconi company. Nearly all British battleships and cruisers have some form of wireless telegraph equipment. In consequence now of an agreement with the Marconi company the use of wireless telegraphy will be greatly extended in the service.

The first battleship designed by Mr. Philip Watts since he became chief constructor of the British navy will be laid down at Devonport. She will have a displacement of 18,000 tons and a speed of 19 knots.

The schooner Vigilant, 113 years old and still in service, trading out of St. Croix, French West Indies, was built in Baltimore. She is the oldest vessel afloat.

Passenger and Freight Boat for Sale

\$15,000 cash will purchase a good passenger and freight boat—Canadian bottom—length over all 133 ft., beam 26 ft. Electric lighted; speedy; good Scotch boiler. Possession can be given for fall trade September 16th or at close of the season, December 1st, 1903. Address Box 48, Marine Review Pub. Co., 39-41 Wade Bldg., Cleveland. Aug. 20

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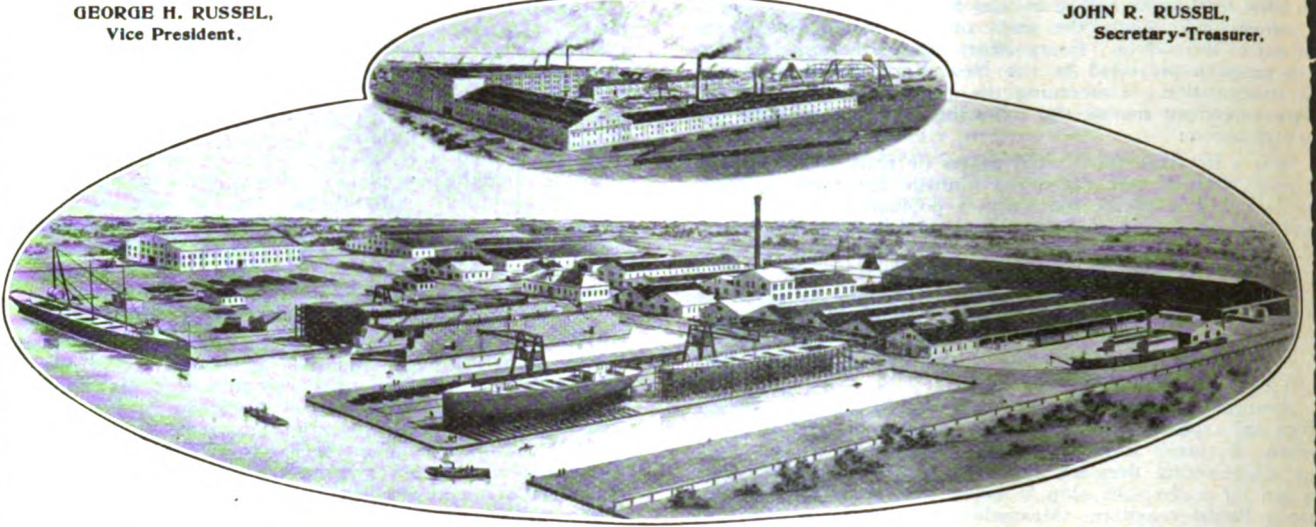
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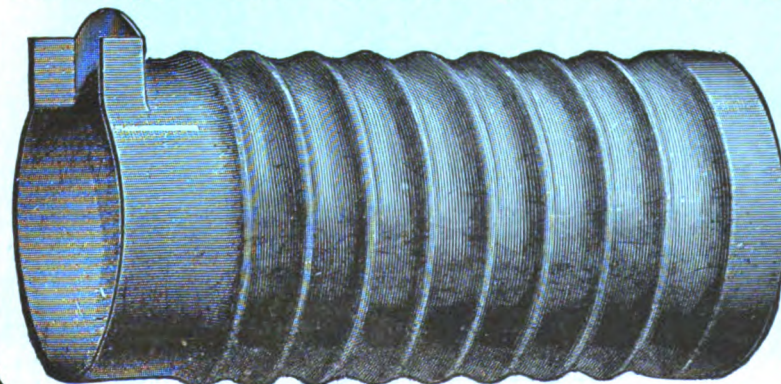
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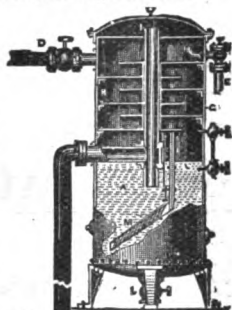
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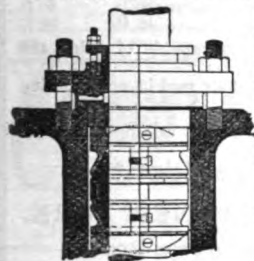
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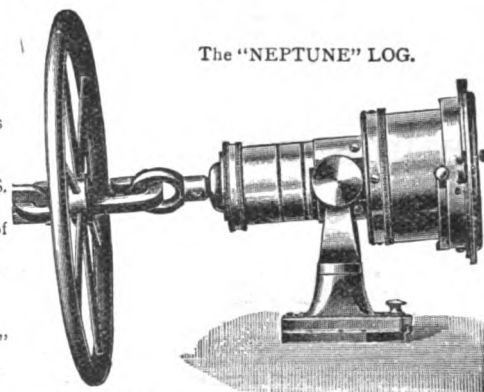
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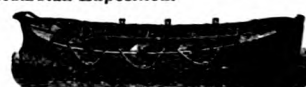
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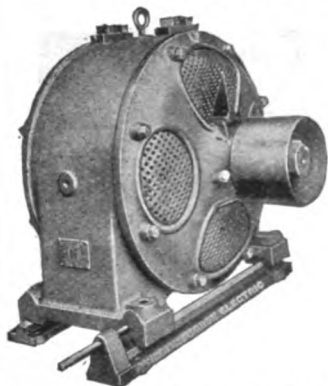
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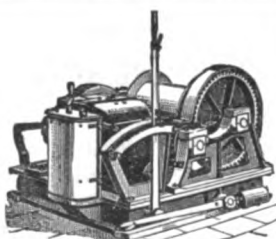
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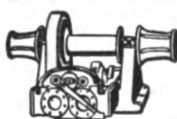
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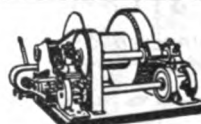
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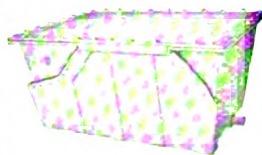
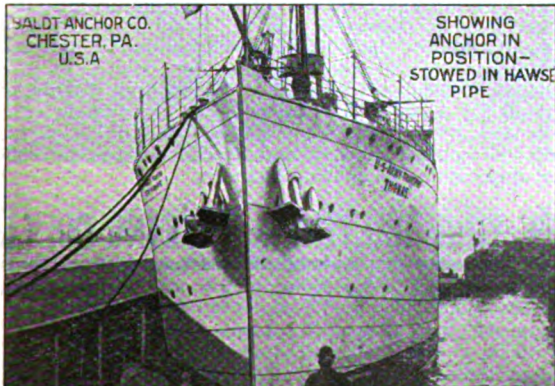
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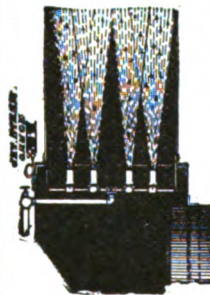
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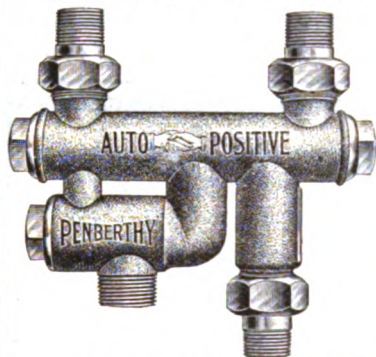
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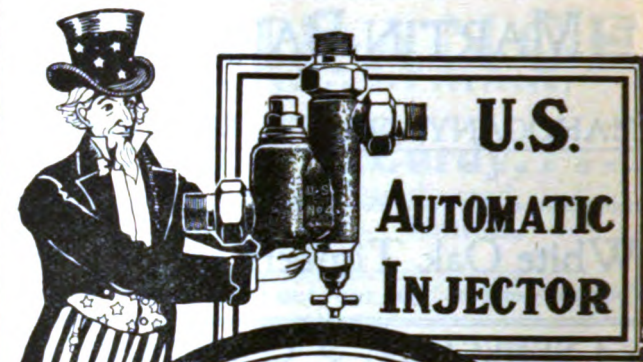
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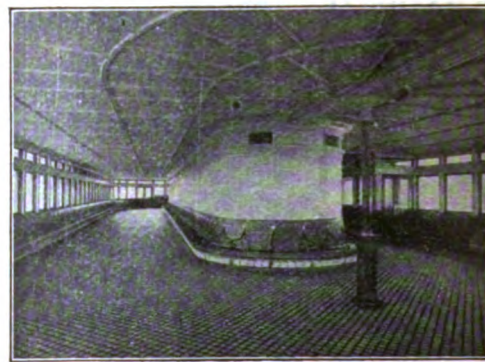
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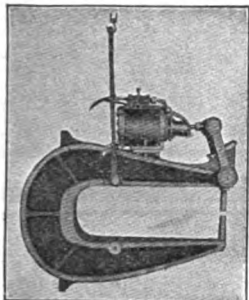
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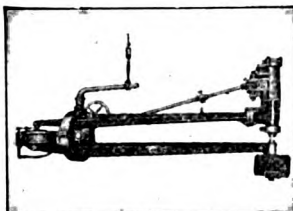
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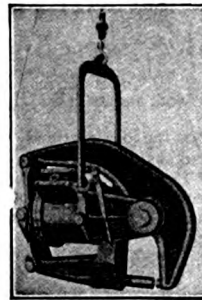


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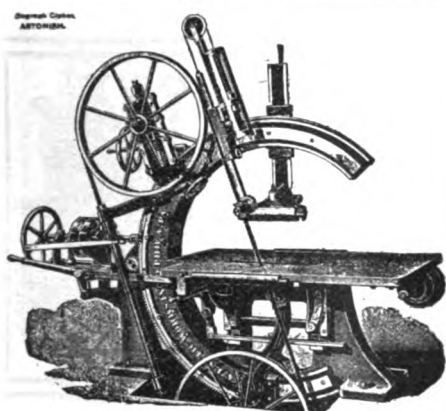
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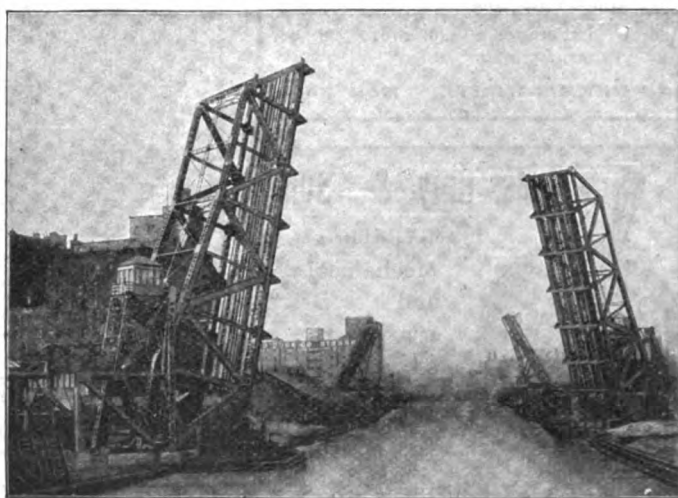
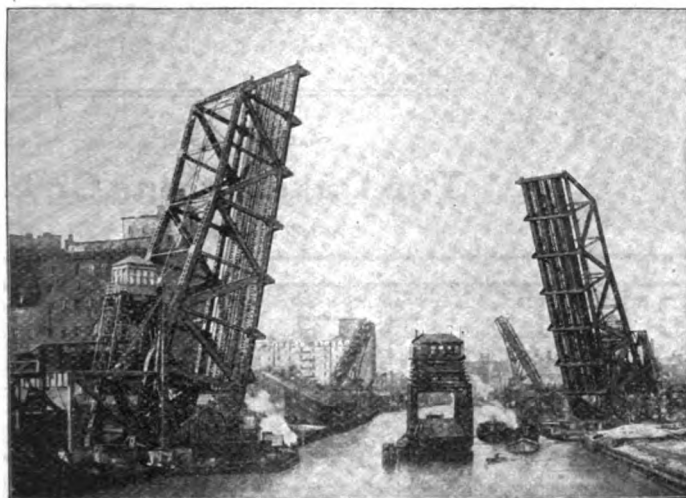
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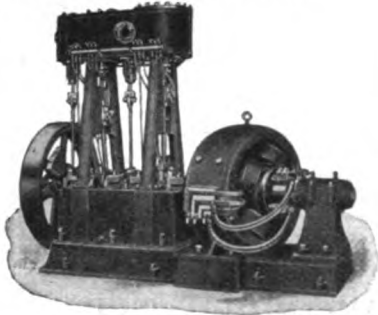
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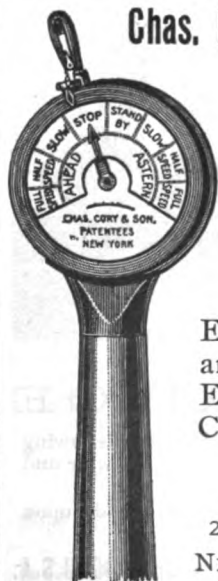
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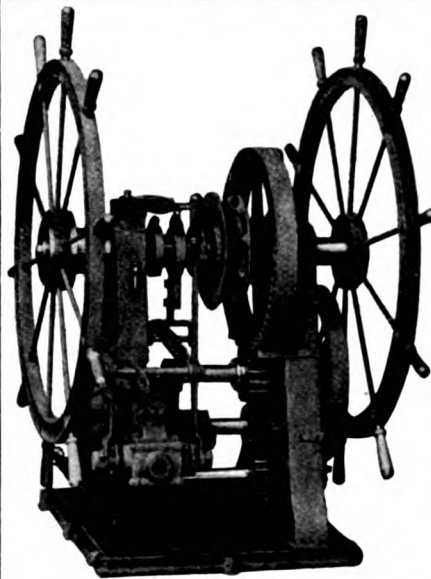
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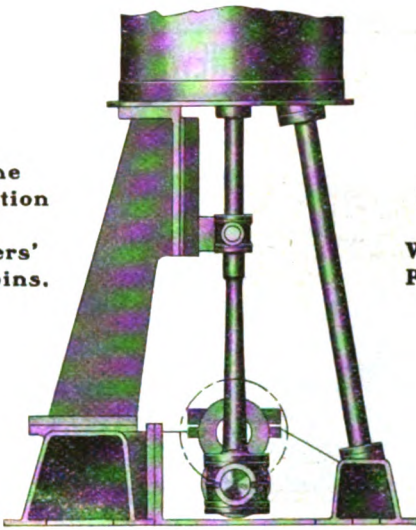
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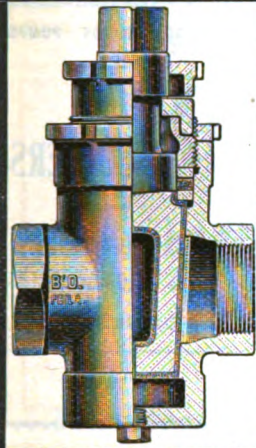
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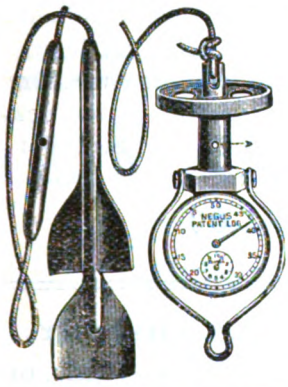
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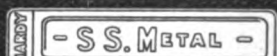
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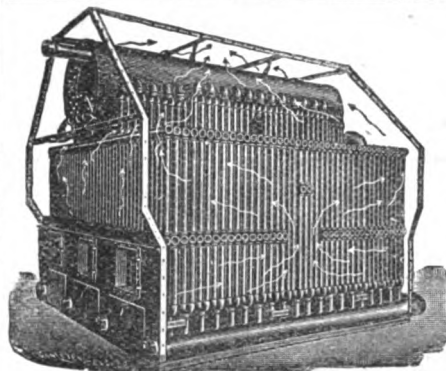
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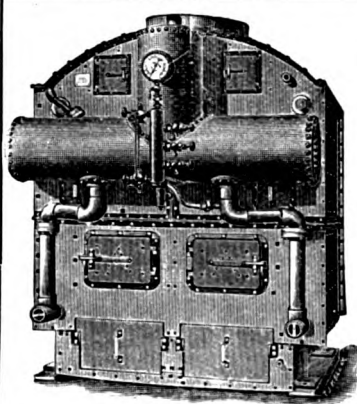
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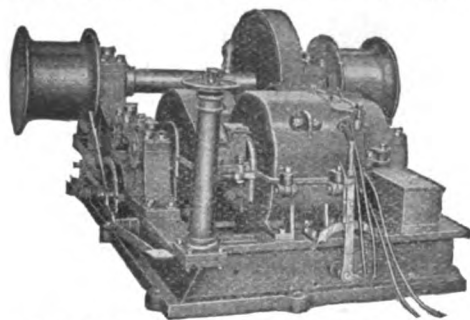
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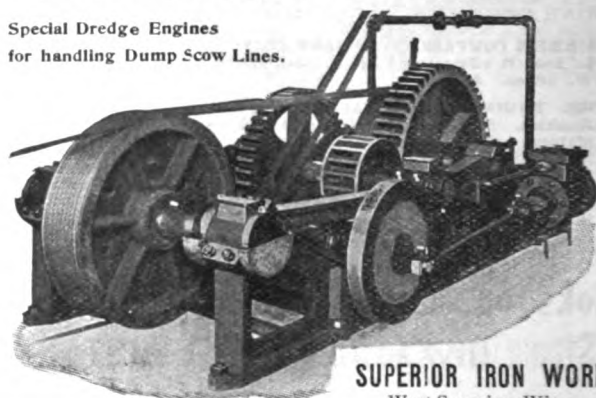
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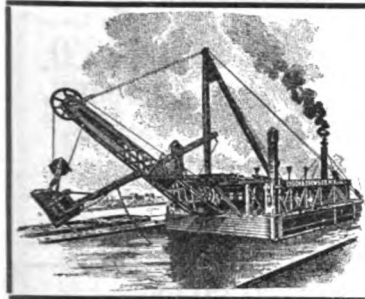
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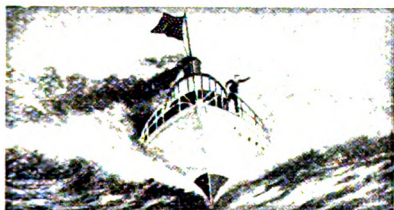
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Car Ferry turning in ice—two views.

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Nightfall on the River.

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General View of Locks from Offices.

Poe Lock, from below, closed.

Poe Lock, from below, open.

Poe Lock, from above.

Poe Lock, with Whaleback.

Weltzel Lock, from above.

Weltzel Lock, from below.

Str. North-Land Passing Locks, two views.

Upper Entrance to Lock Canal.

Gate Mechanism.

Interior of Power House.

Canadian Lock from Upper End.

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The Rapids, looking up.

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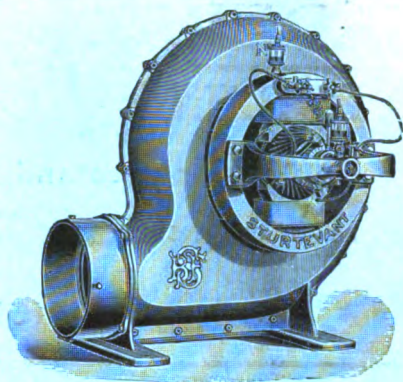
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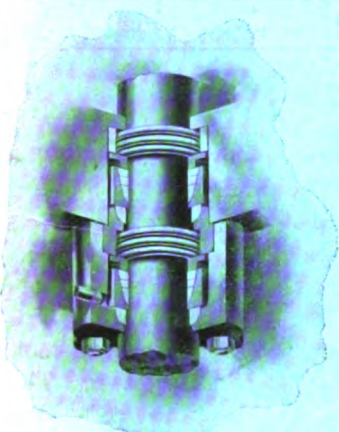
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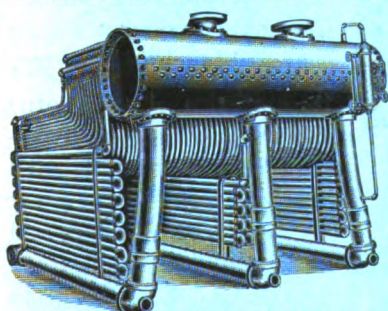
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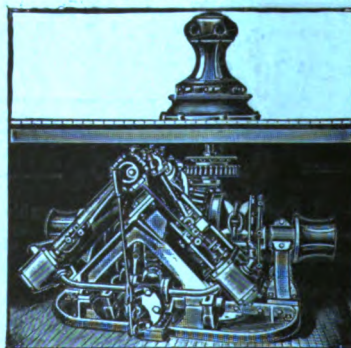
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